ArvinMeritor, Inc., AdobeAir, Inc., Cooper Industries, Inc.

500 South 15th Street Facility

August 18, 2009

Imagine the result

ARCADIS

Agenda

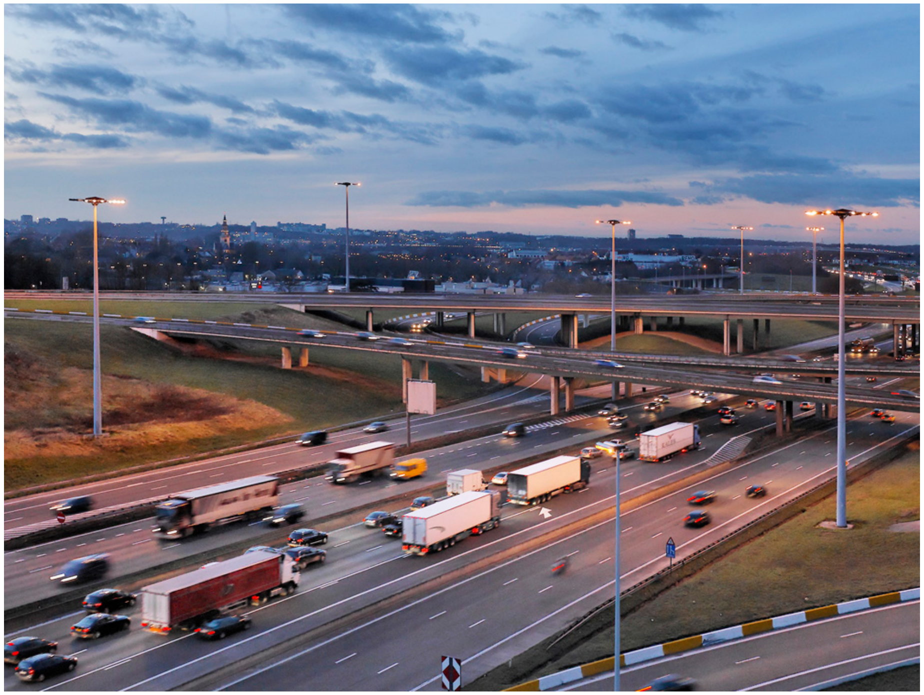
- Safety Share
- Current Status of Project
  - Indoor Air Update
  - Local & Regional Groundwater Conditions
  - Soil Vapor Extraction Pilot Study Status
- Upcoming Events/Schedule
- Legal Status of AdobeAir, Inc.
- USEPA Release of Southern Half of Property from Additional Investigation
- Questions/Comments
- Adjourn

Safety Share

Preventable Motor Vehicle Accidents

1. Aim High in Steering.
2. Get The Big Picture.
3. Keep Your Eyes Moving.
4. Leave Yourself An Out.
5. Make Sure They See You.

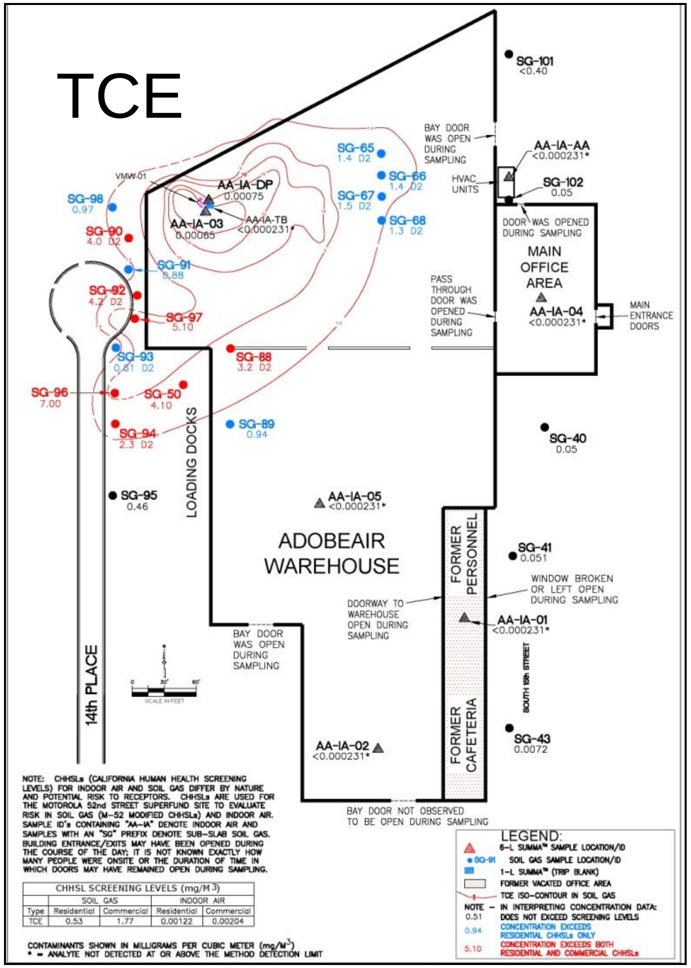
Smith System Driver Improvement Institute, Inc.



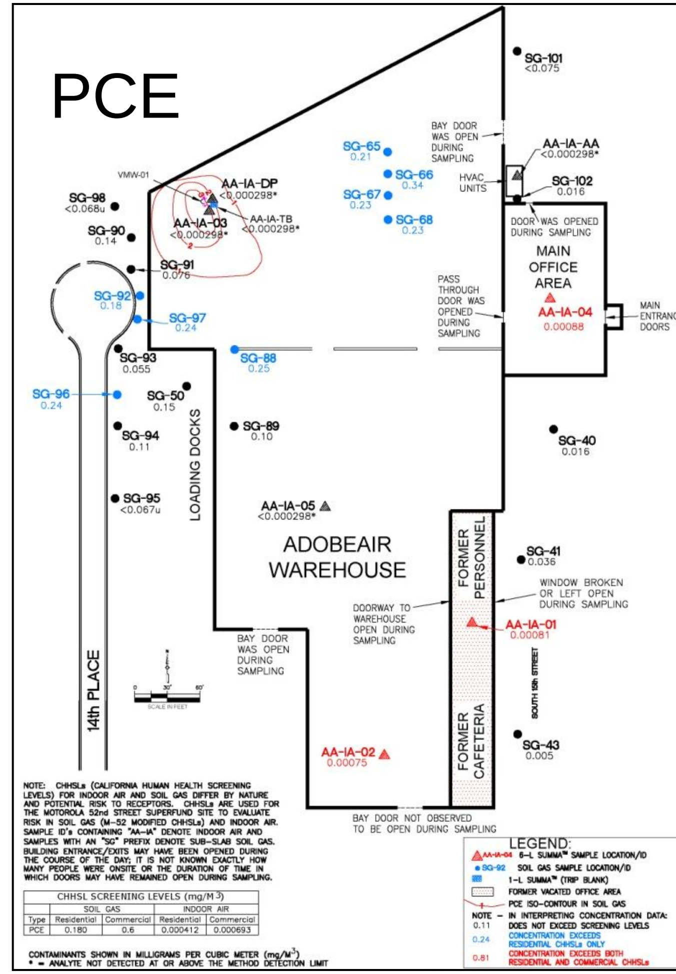
Current Status of Project

- Indoor Air Update
- Local &Regional Groundwater Conditions
- Soil Vapor Extraction Pilot Study Status

Indoor Air Update



- February 5, 2009 - Indoor Air (IA) Winter Event samples collected
- June 18, 2009 – submittal of Draft Technical Memorandum for Indoor Assessment – Winter Sampling Event
- July 29, 2009 - Indoor Air Summer Event samples collected



Summary

- TCE was not detected in IA exceeding CHHSLs at any location. Only detection was near vapor monitoring well VMW-01.
- PCE was detected in IA exceeding CHHSLs in the office and southern portion of the warehouse – no detections at the location of the highest soil gas concentration (near vapor monitoring well VMW-01).
- IA (Summer Event) samples will be re-sampled due to Summa® canisters not being certified-clean for TO-15 low level analysis. August 21, 2009 - Indoor Air Summer Event re-sample date.

Local & Regional Groundwater Conditions

September 2008 OU-3 Semi-Annual Groundwater Report Contaminant Iso-contours include the 500 South 15th Street Facility

Preliminary Evaluation of Trichloroethene (TCE) Fate and Transport in Groundwater

Discussion Outline

- Regional Geologic Setting
- Regional Hydrogeologic Setting
- Site-Specific Hydrogeologic Conceptual Site Model
- Fate and Transport Conceptual Site Model
- Analytic Fate and Transport Model
- Summary & Conclusions

Regional Geology

(from Reynolds & Bartlett, 2002)

- Land surface decreases in elevation from NE to SW
- Buried rock pediment is most important geologic and hydrologic boundary, separates underlying bedrock from overlying unconsolidated Quaternary and Tertiary alluvium and basin fill
- Basin fill is thickest in area east and west of bedrock ridge
- Salt River Gravels thicken to west and pinch out northeastward (eastern portion of the Phoenix basin)
- Uppermost alluvium surface material consists of silt, sand gravel,

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Regional Hydrogeology

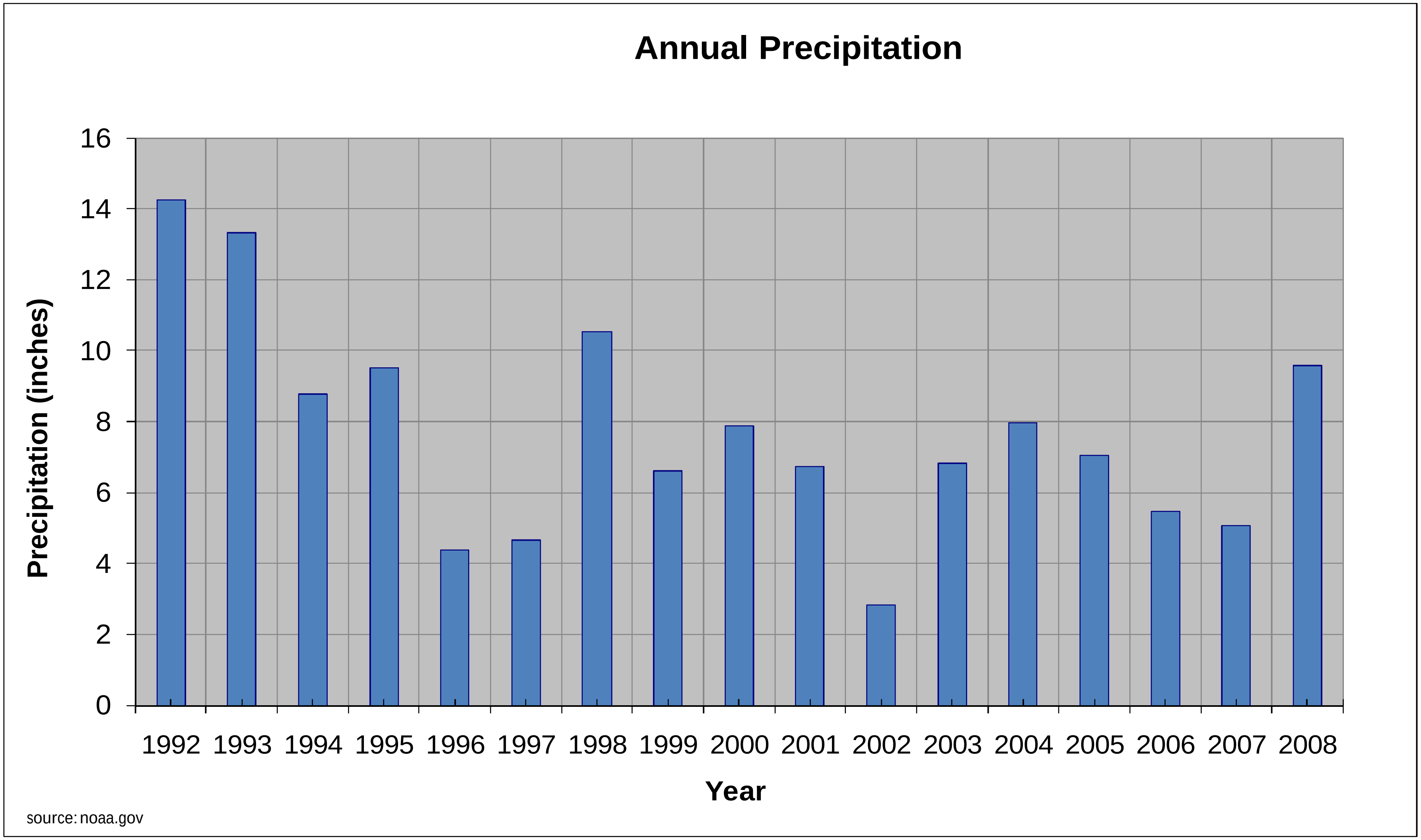
(from Reynolds & Bartlett, 2002)

- Groundwater generally flows to west but is influenced by different lithologies, buried bedrock ridges, large irrigation and water-supply wells
- Three “hydrostratigraphic units” consist of hard bedrock, overlying basin fill and Salt River Gravels
- Bedrock- main source of permeability is fractures; mid-Tertiary bedrock reported hydraulic conductivity of <0.01 feet/day
- Basin Fill reported hydraulic conductivities range from 1 to up to 60 feet/day
- Salt River Gravels- hydraulic conductivities range from 200 – 450 feet/day
- Top of bedrock decreases in elevation from east to west

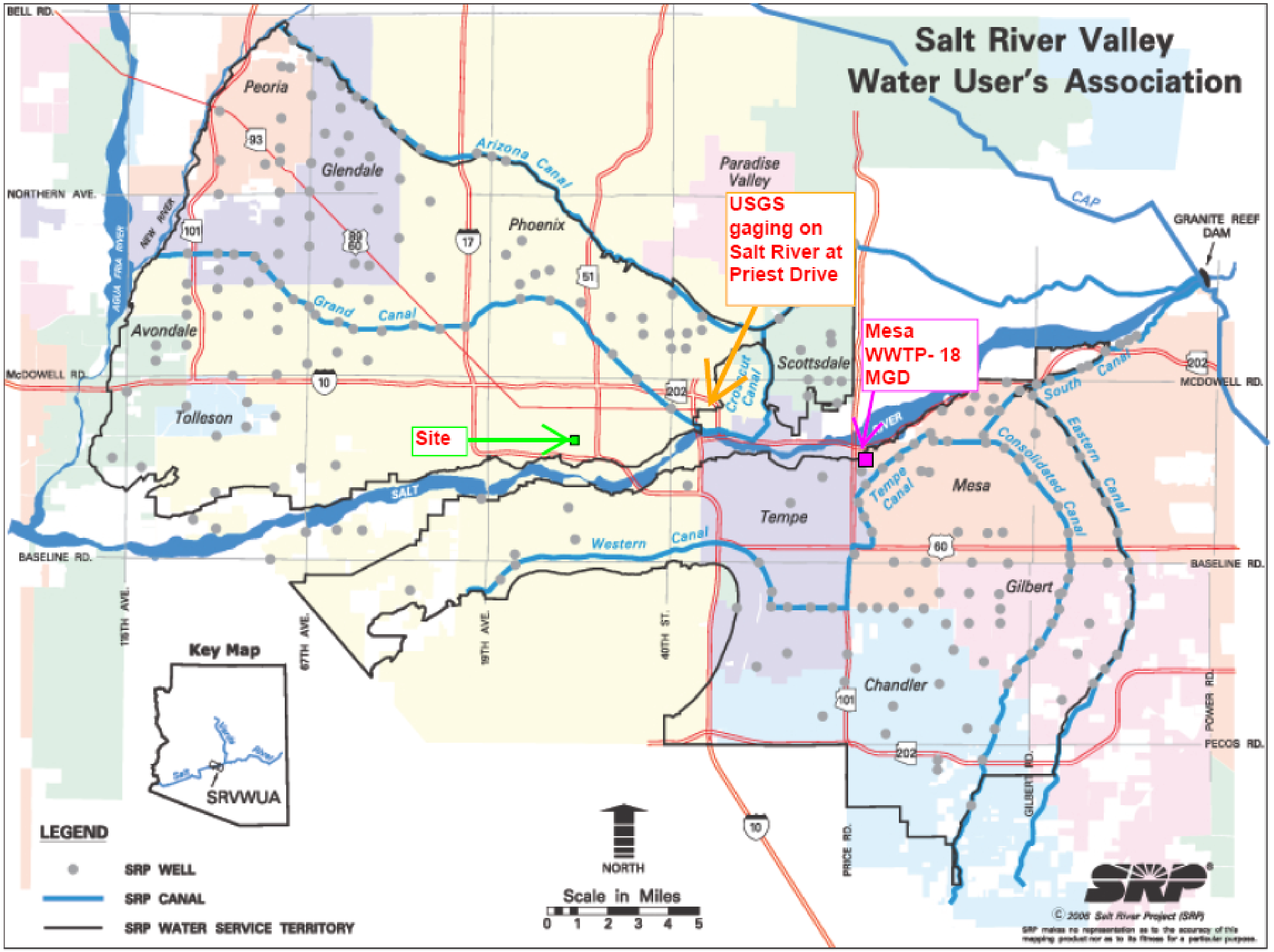
Site-Specific Hydrogeologic Conceptual Site Model (CSM)

- Geology consists of fine-grained silt and sand to ~15 ft bgs (below ground surface) overlying coarse-grained sand and gravel deposits
- Depth to water has historically ranged from 60 to 90 ft btoc (below top of casing) with elevations of 1,000 to 1,032 ft amsl (above mean sea level)
- Groundwater flow generally to the West
- Regionally, there is evidence of influence on groundwater elevations by increase in flux from Salt River
- Hydraulic conductivity values range from 200 – 450 ft/day (Reynolds & Bartlett, 2002)
- Site gradient ranges from 0.001 to 0.003 ft/ft (data from all wells from 1992 – 2009)

Annual Precipitation



Gaging station location



Imagine the result

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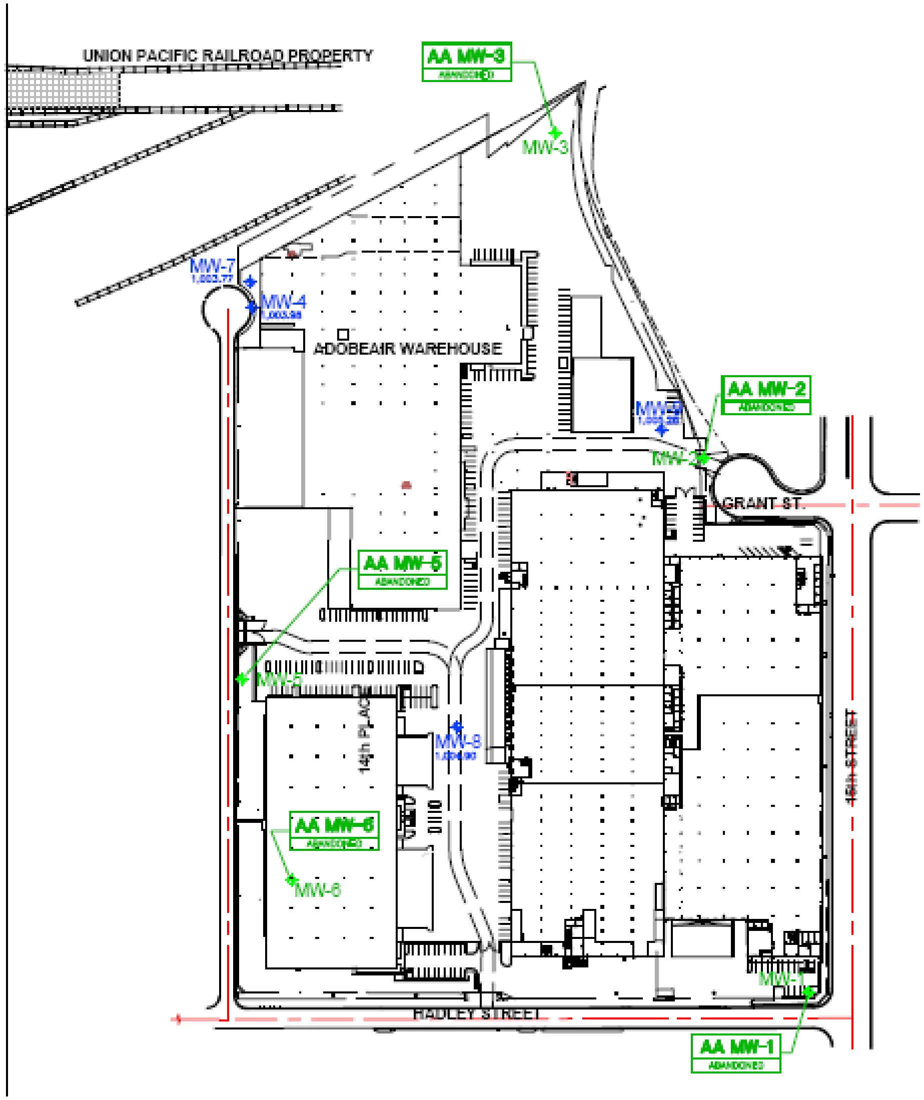
500 South 15th Street Facility

Site Map



Imagine the result

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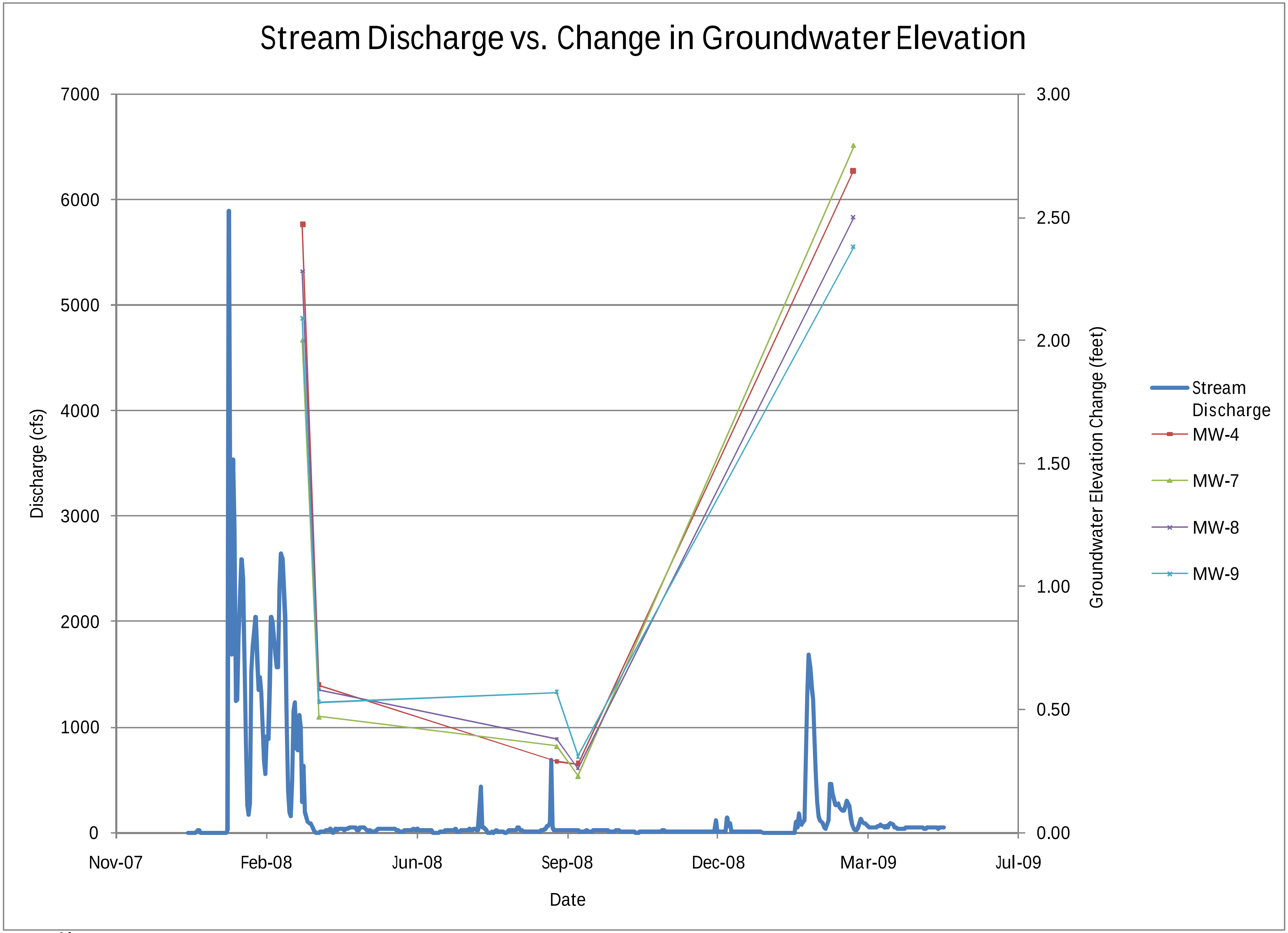
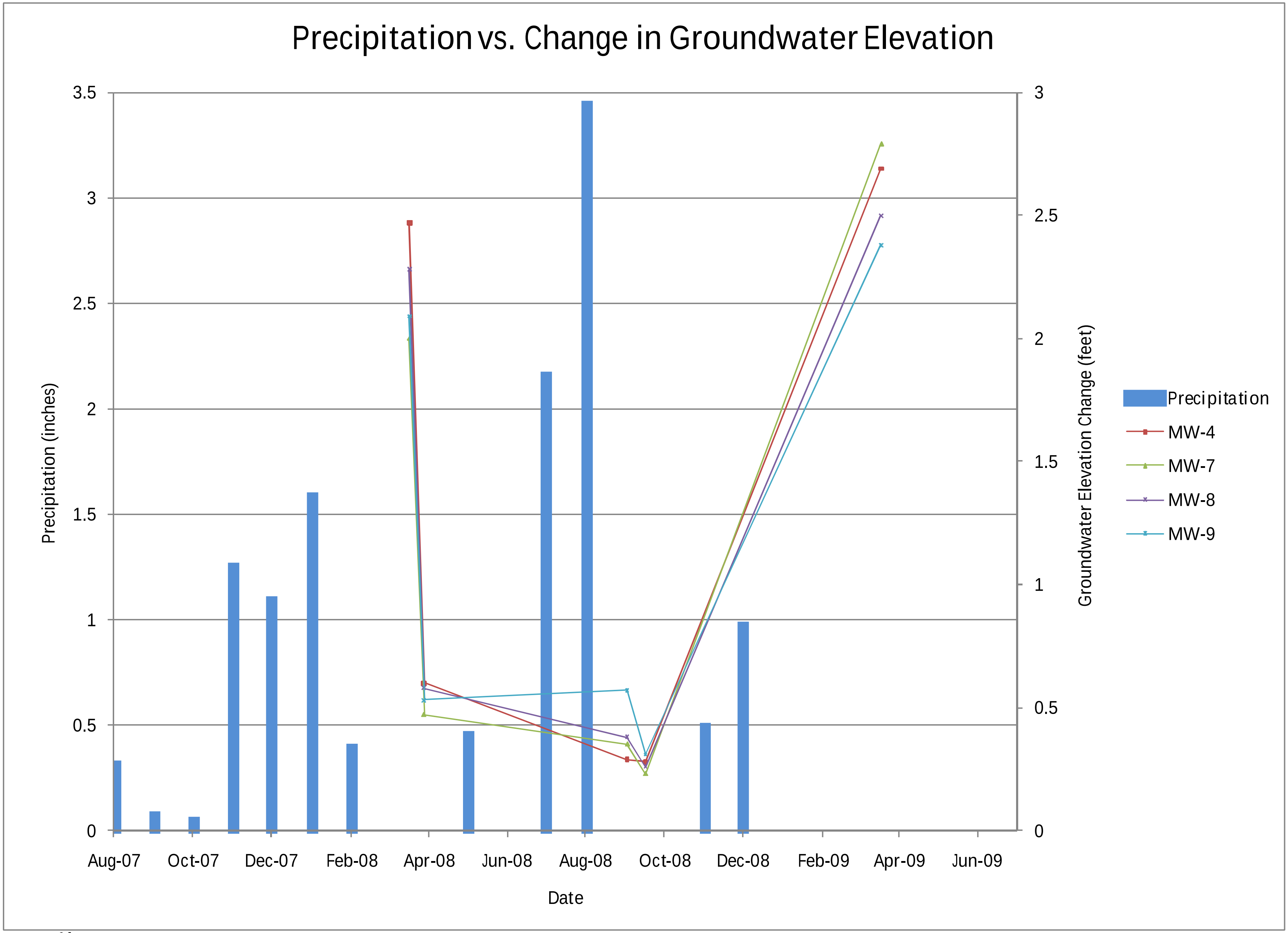
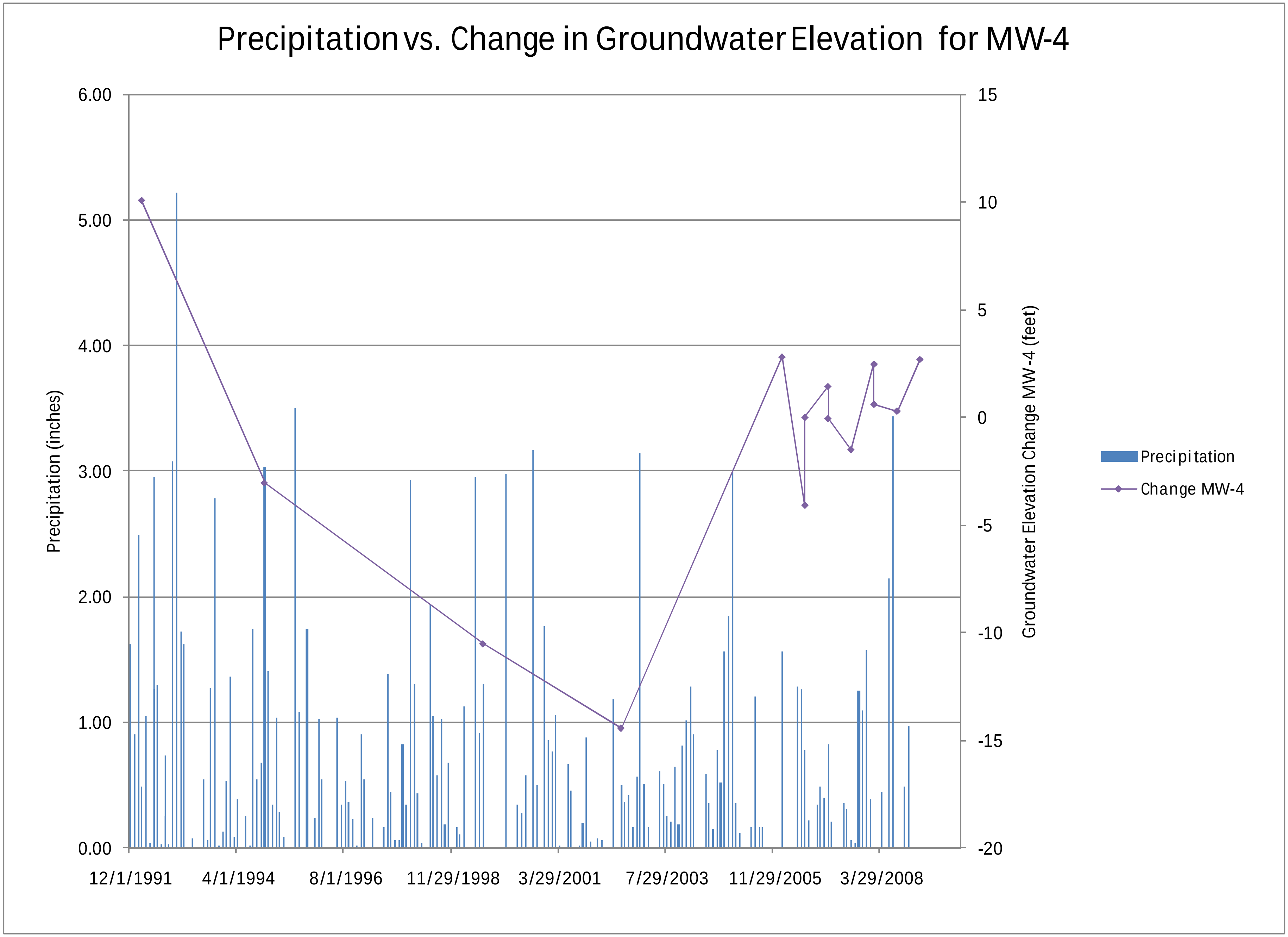
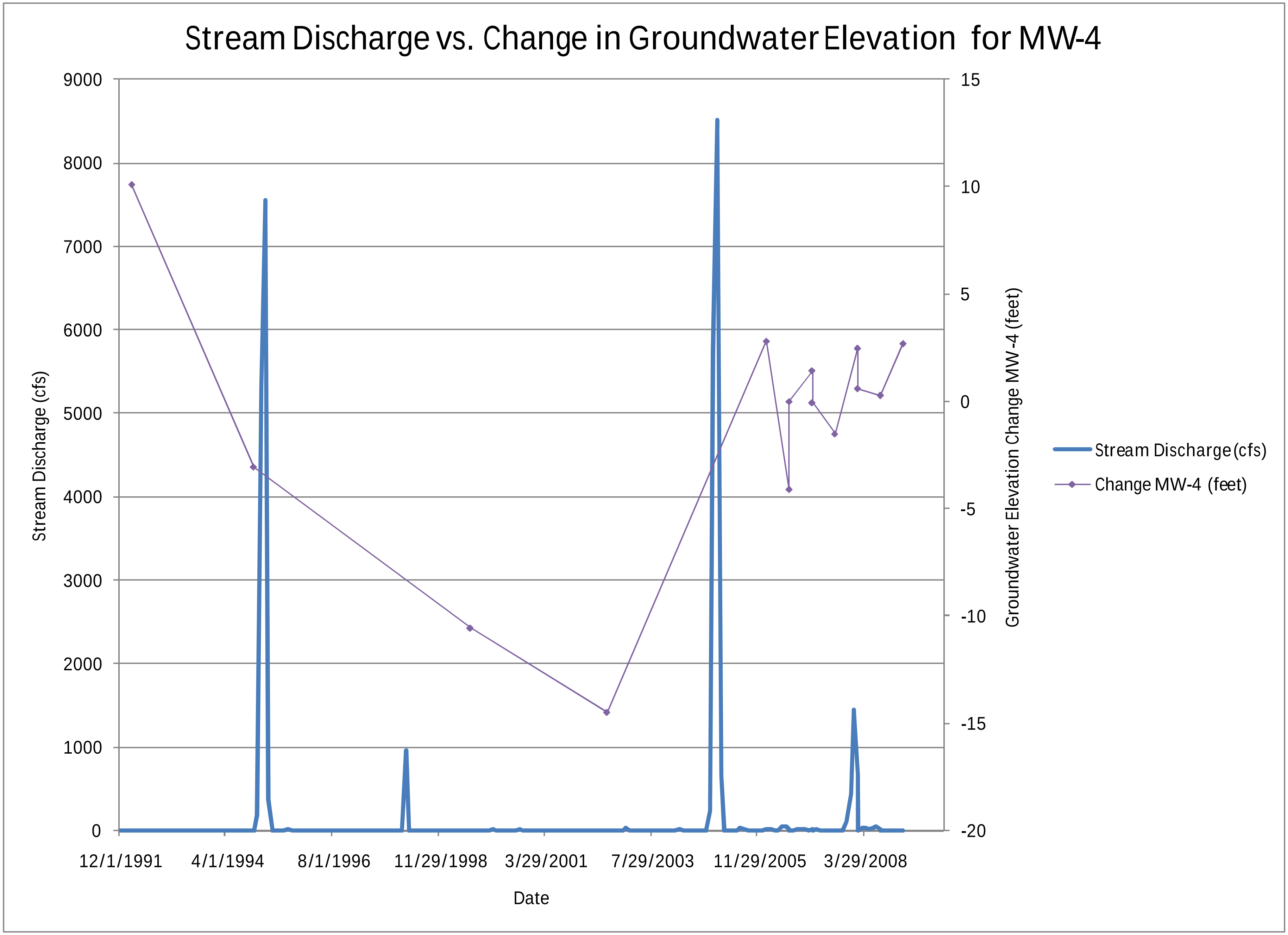

Stream Discharge vs. Change in Groundwater Elevation
Discharge (cfs)
7000
6000
5000
4000
3000
2000
1000
0
Groundwater Elevation Change (feet)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Nov-07
Feb-08
Jun-08
Sep-08
Dec-08
Mar-09
Jul-09
Date
Stream Discharge
MW-4
MW-7
MW-8
MW-9



Precipitation vs. Change in Groundwater Elevation
Precipitation (inches)
Groundwater Elevation Change (feet)
Date
3.5
3
2.5
2
1.5
1
0.5
0
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
Feb-09
Apr-09
Jun-09
Precipitation
MW-4
MW-7
MW-8
MW-9

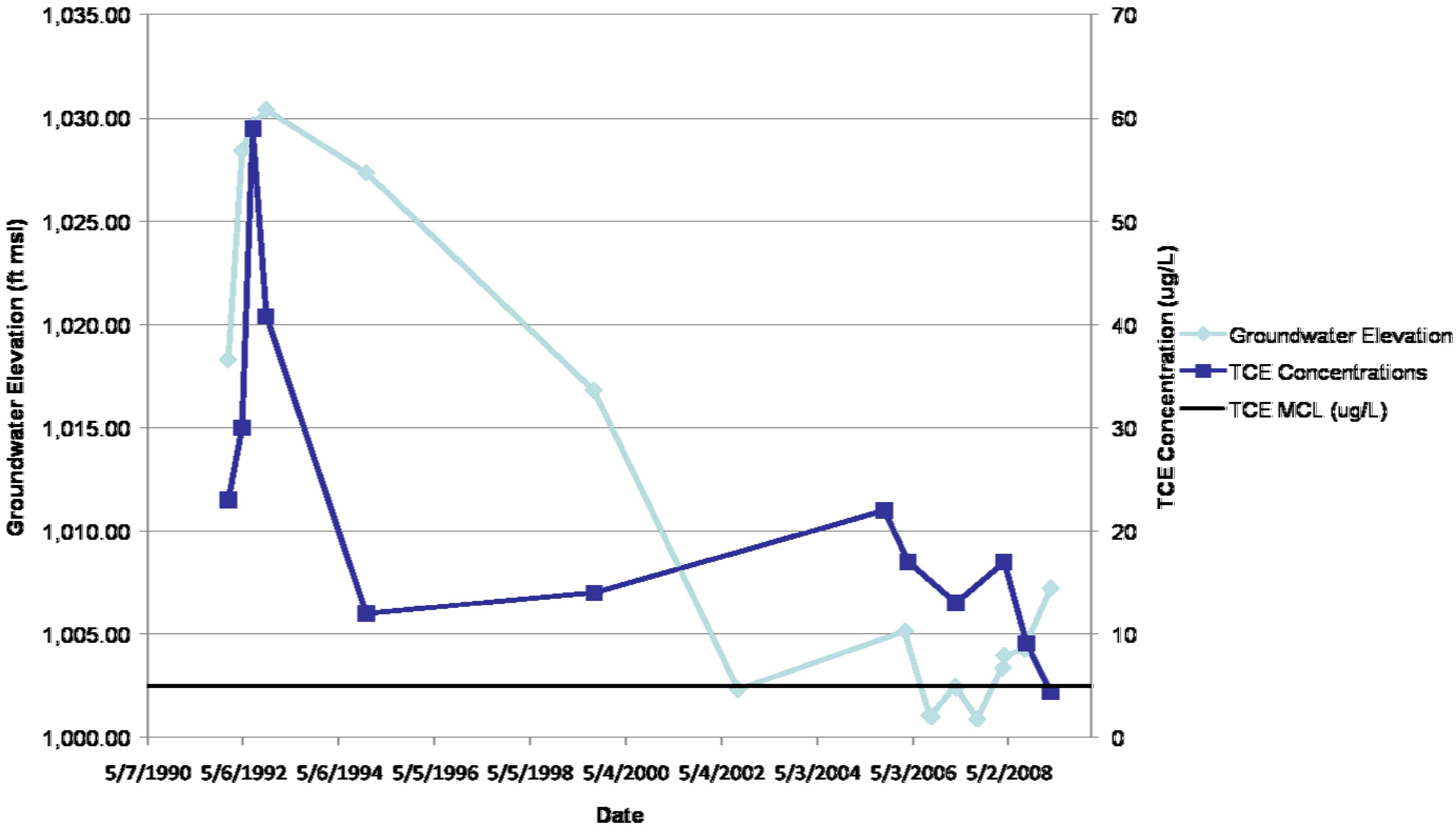


Precipitation vs. Change in Groundwater Elevation for MW-4
Precipitation (inches)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Groundwater Elevation Change MW-4 (feet)
15
10
5
0
-5
-10
-15
-20
12/1/1991
4/1/1994
8/1/1996
11/29/1998
3/29/2001
7/29/2003
11/29/2005
3/29/2008
Precipitation
Change MW-4

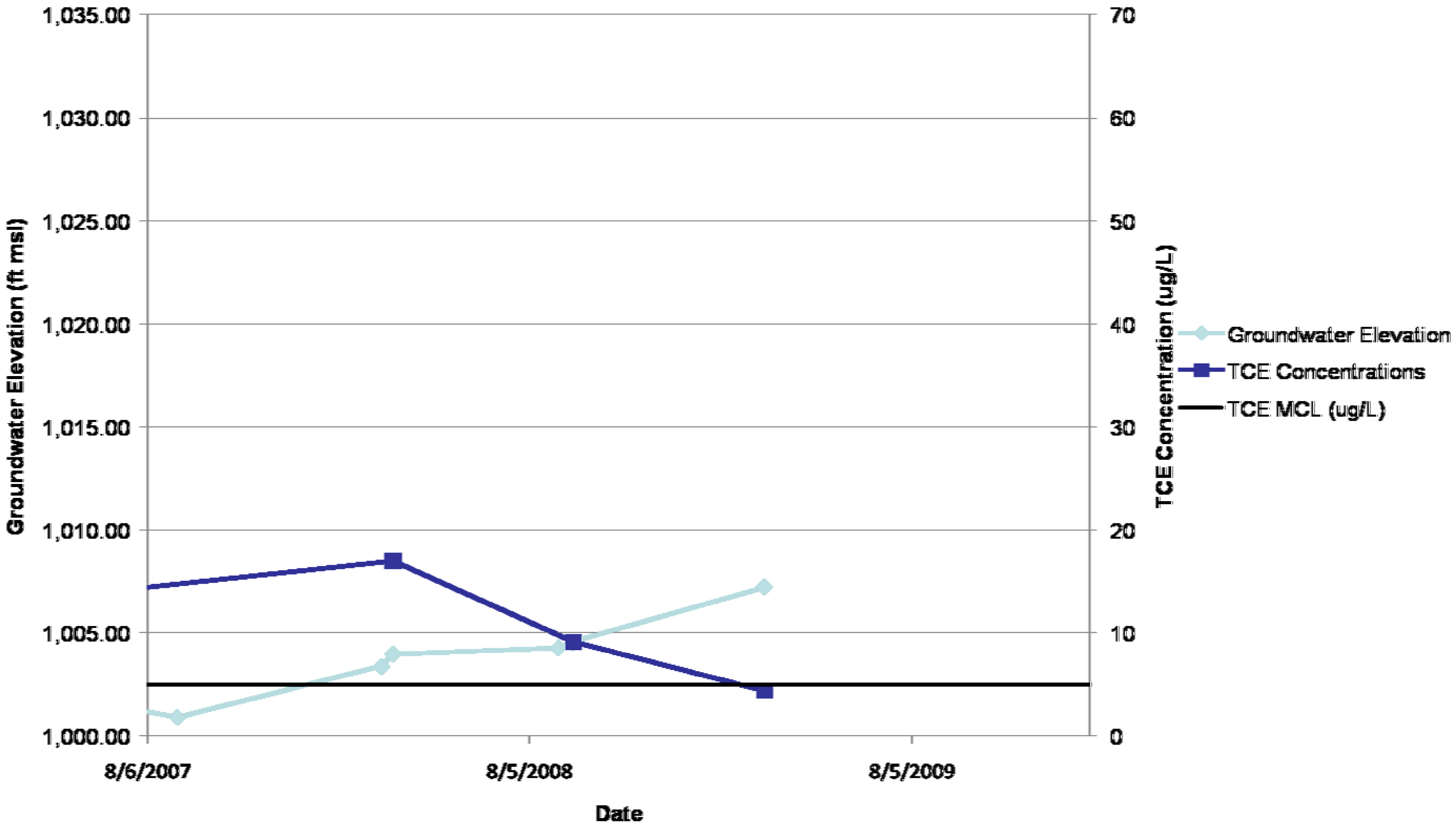


Stream Discharge vs. Change in Groundwater Elevation for MW-4
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
15
10
5
0
-5
-10
-15
-20
Stream Discharge (cfs)
Groundwater Elevation Change MW-4 (feet)
12/1/1991
4/1/1994
8/1/1996
11/29/1998
3/29/2001
7/29/2003
11/29/2005
3/29/2008
Date
Stream Discharge (cfs)
Change MW-4 (feet)

MW-4


1,035.00
1,030.00
1,025.00
1,020.00
1,015.00
1,010.00
1,005.00
1,000.00
Groundwater Elevation (ft msl)
70
60
50
40
30
20
10
0
TCE Concentration (ug/L)
5/7/1990
5/6/1992
5/6/1994
5/5/1996
5/5/1998
5/4/2000
5/4/2002
5/3/2004
5/3/2006
5/2/2008
Date
Groundwater Elevation
TCE Concentrations
TCE MCL (ug/L)

MW-4 - past 3 years



Imagine the result

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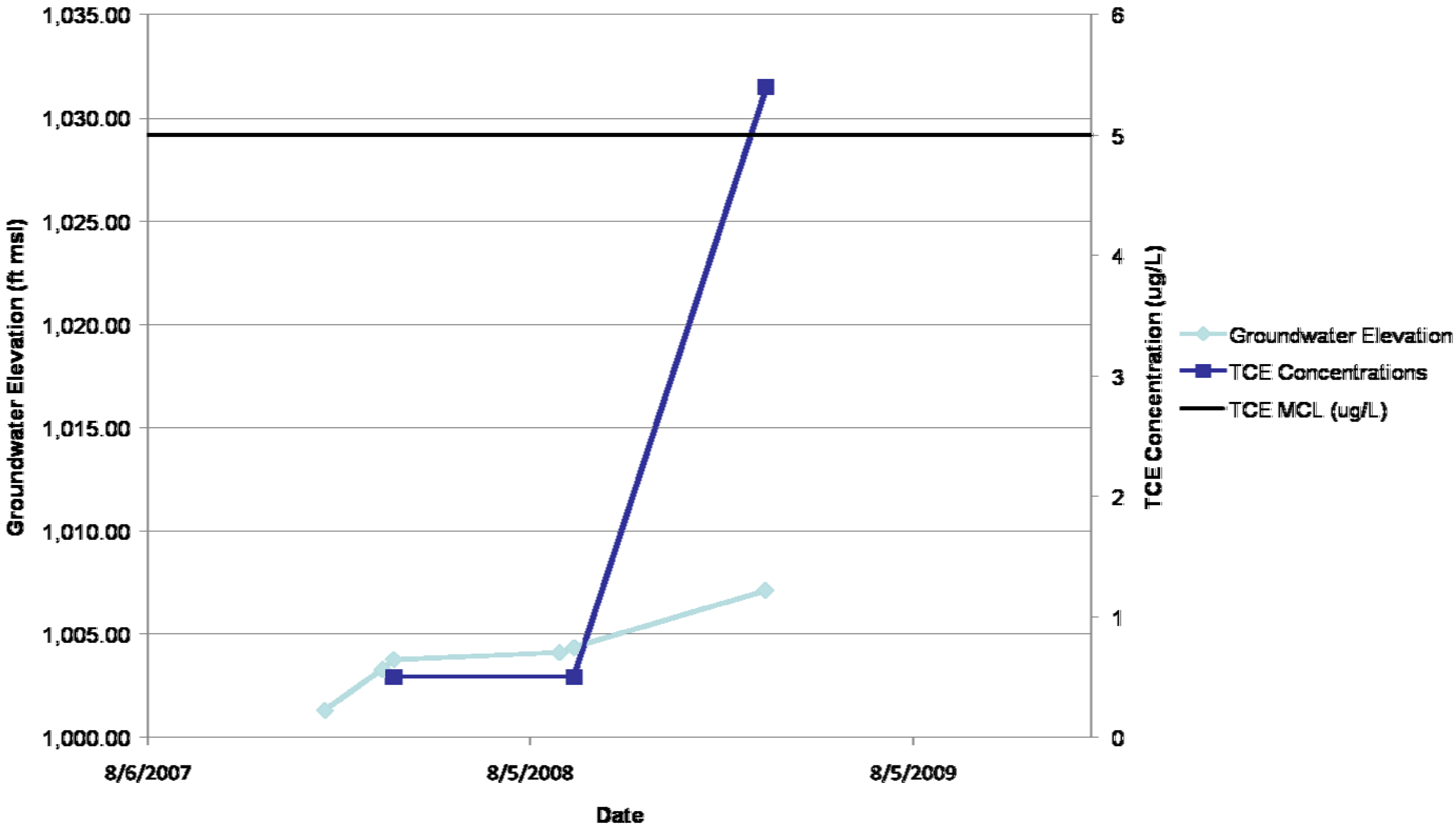
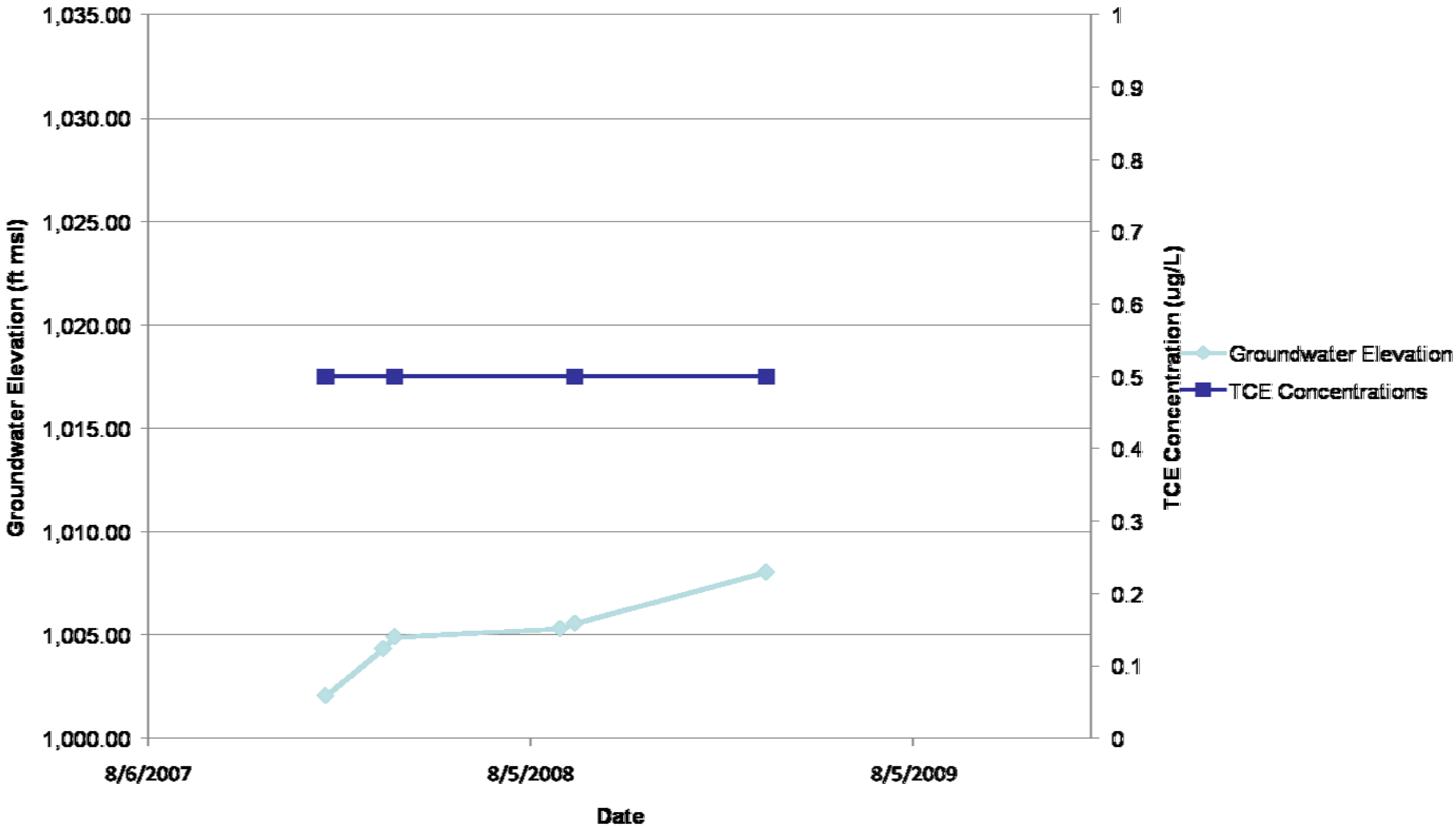
MW-7



Imagine the result

ARCADIS

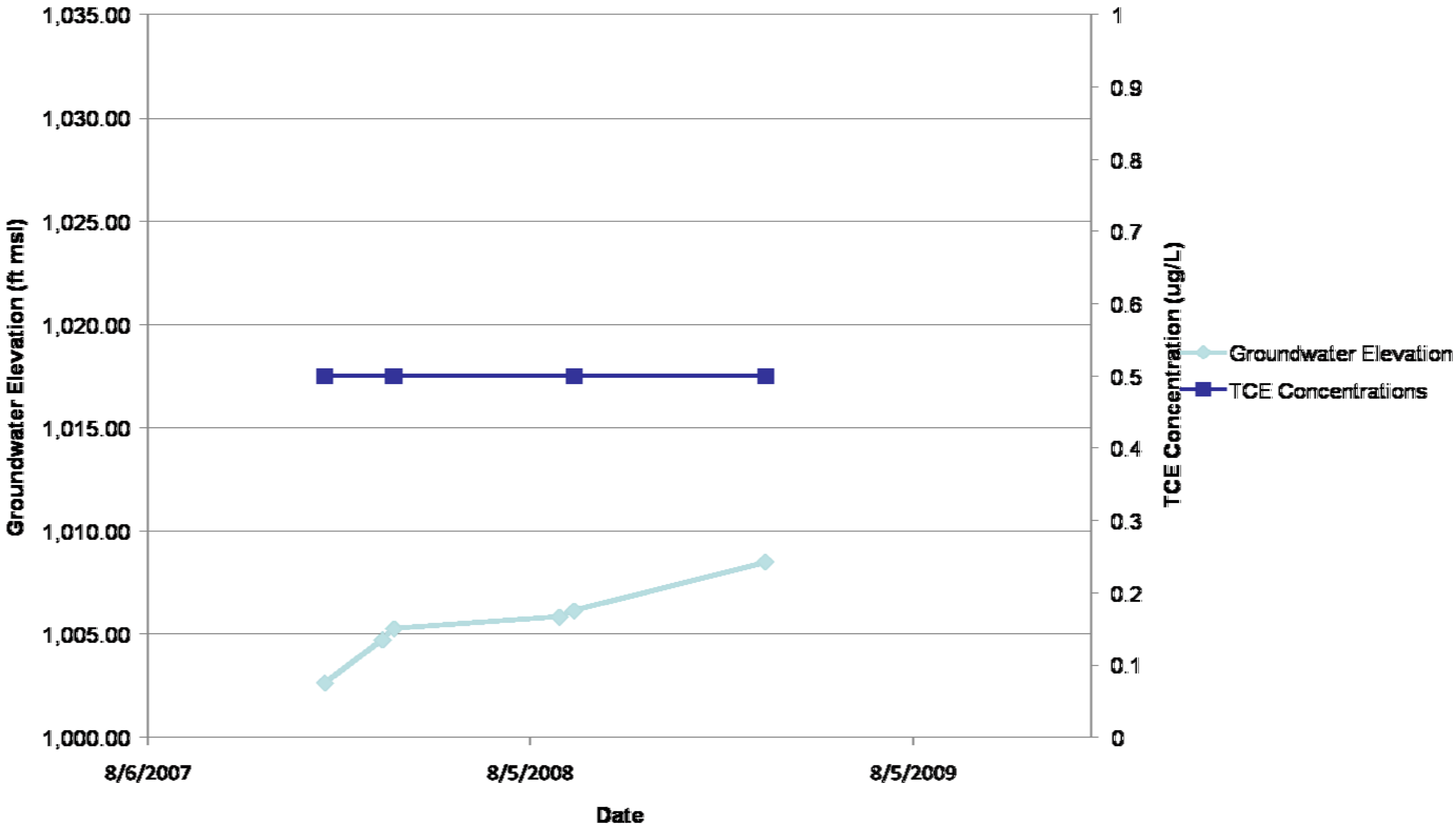
MW-8



Imagine the result

ARCADIS

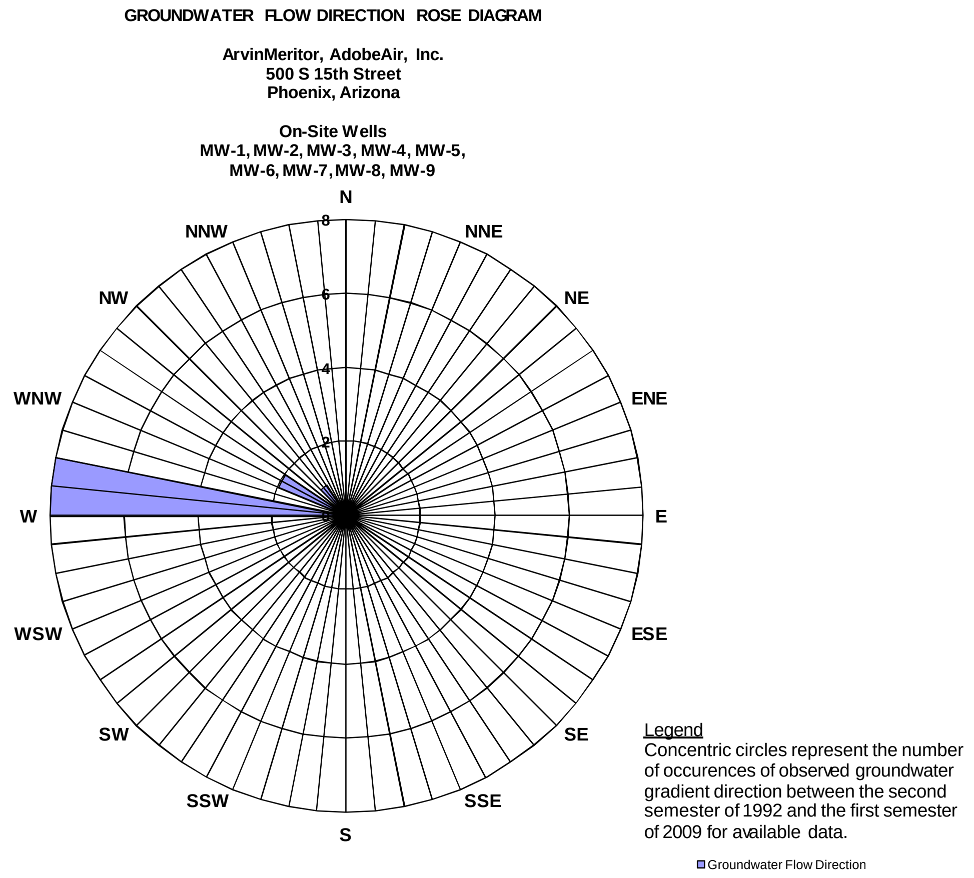
MW-9



Imagine the result

Site-Specific Gradients

Average gradient = 0.002 ft/ft; W is dominant direction



Site + Regional Gradients

Average gradient = 0.002 ft/ft; WNW dominant direction

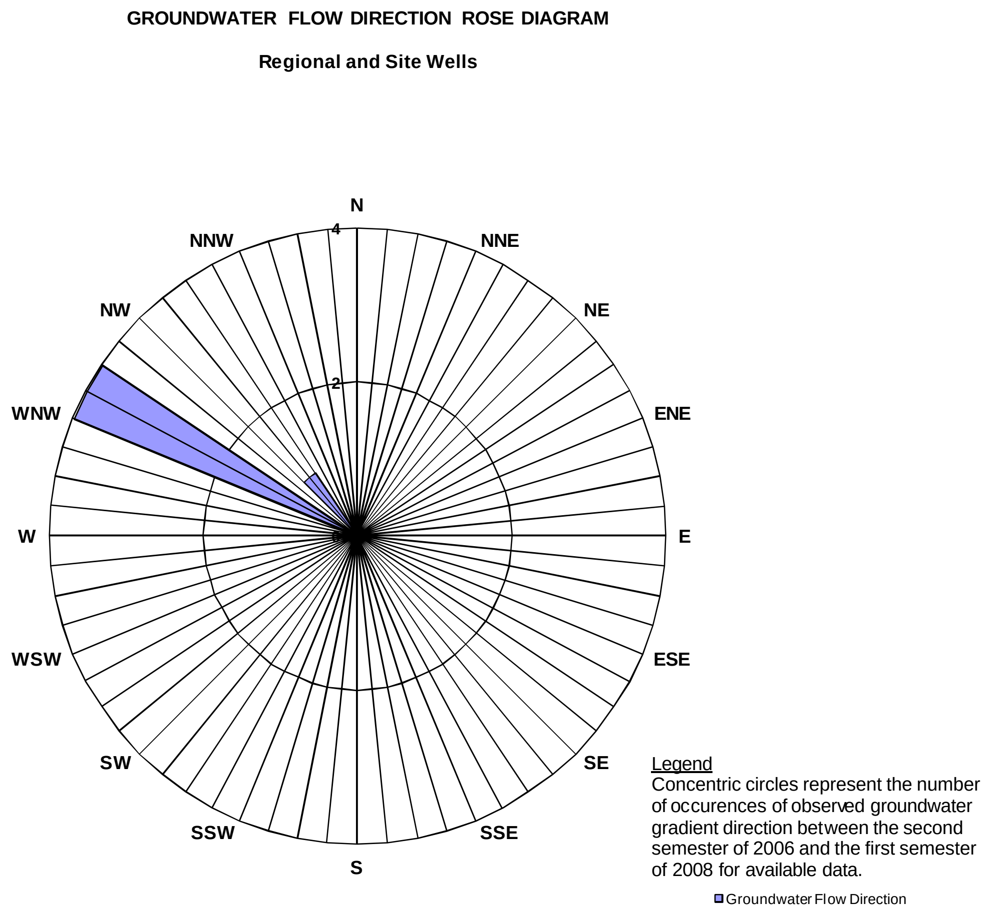
Wells evaluated:

500 South 15th Street Facility Wells MW-1 to MW-9 (when available)

SRP's 16th Street Wells (16ST-01 to 16ST-04)

OU-3 Well SC-MW-1D

Walker Power's TT-2



Imagine the result

ARCADIS

Fate & Transport Modeling

Fate and Transport Model:

- Fate and Transport (F&T) model based on the USEPA analytical model BIOCHLOR (BIOCHLOR V 2.2, USEPA 2002 EPA/600/R-00/008)
- BIOCHLOR is a one-dimensional advection, three-dimensional dispersion analytical model

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Fate & Transport Modeling

Model Objective:

- **Objective:**
  - Use available Site information and down-gradient concentration data to calibrate the analytic fate and transport model to current conditions
  - Evaluate the validity of Figure 3 presented in the Groundwater Monitoring Report for the Motorola 52nd Street Superfund Site OU-3 Study Area (September, 2008)

- **Fate and Transport Model Input Parameters to calibrate include:**
  - Hydraulic Conductivity
  - Dispersion (Mixing Potential)
  - Effective Porosity
  - Groundwater Gradient Magnitude
  - Groundwater Gradient Direction
  - Source Concentration
  - Source Geometry

Fate & Transport Modeling

Analytical Model Simplifications:

- **Simplifications:**
  - Initial TCE concentration distribution = 0 micrograms per Liter (µg/L) throughout model domain.
  - Concentration at the source is constant (does not increase or decrease in time).
  - The aquifer and flow field are homogeneous and isotropic.
  - The groundwater velocity is high enough to disregard molecular diffusion contribution to the hydrodynamic dispersion.

Fate & Transport Modeling

Model Constraints:

- **Constraints:**
  - Model calibration is inherently multivariate (involves more than one independent variable)
  - To reduce the number of solutions, (combinations of calibrated parameters that produce the same result), the groundwater velocity and mixing potential is assumed to be constant, *i.e.*
    - Hydraulic Conductivity = 450 feet/day
    - Effective Porosity = 0.20
    - Groundwater Gradient Magnitude = 0.002 ft/ft
    - Dispersivity = 80 feet
  - These input parameters were held constant and not adjusted during model calibration. This is a reasonable assumption.

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Fate & Transport Modeling

Model Constraints:

- **Remaining Parameters to Calibrate:**
  - Groundwater Gradient Direction
  - Source Concentration
  - Source Geometry

- **Constraints**

  Use all available information to constrain acceptable minimum and maximum values for each input parameter to calibrate, *e.g.*

  Groundwater Gradient Direction:

  Utilize historical groundwater flow direction data to determine a range of acceptable flow directions

  Source Concentration:

  Utilize Site groundwater and soil gas data in concert to determine a range of acceptable source concentrations

  Source Geometry:

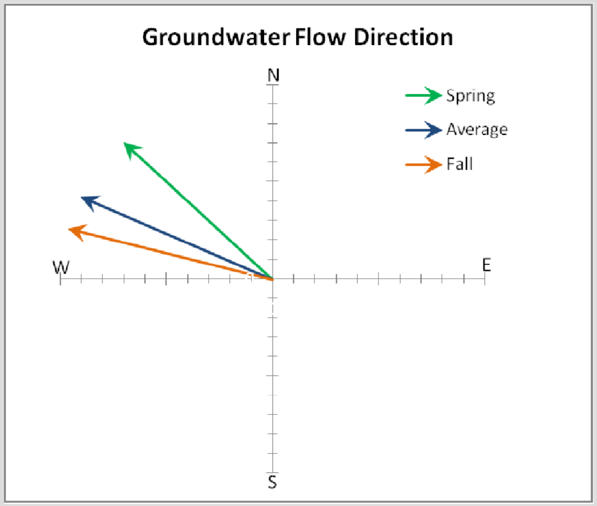
  Utilize soil gas data to determine a range of acceptable source zone widths

Fate & Transport Modeling

Model Constraints:

- **Constraints on Remaining Model Input Parameters**

- **Groundwater Flow Direction**
  - Available Site and Regional groundwater elevation data used in concert over time indicate:
    - Average groundwater flow azimuth (direction) = 295^o
    - Minimum groundwater flow azimuth (direction) = 285^o
    - Maximum groundwater flow azimuth (direction) = 315^o



Note, the average groundwater flow direction is strictly a numeric average bearing, and should not be interpreted as a time-averaged value. In other words, the average groundwater flow direction does not necessarily indicate the predominant annual flow direction.

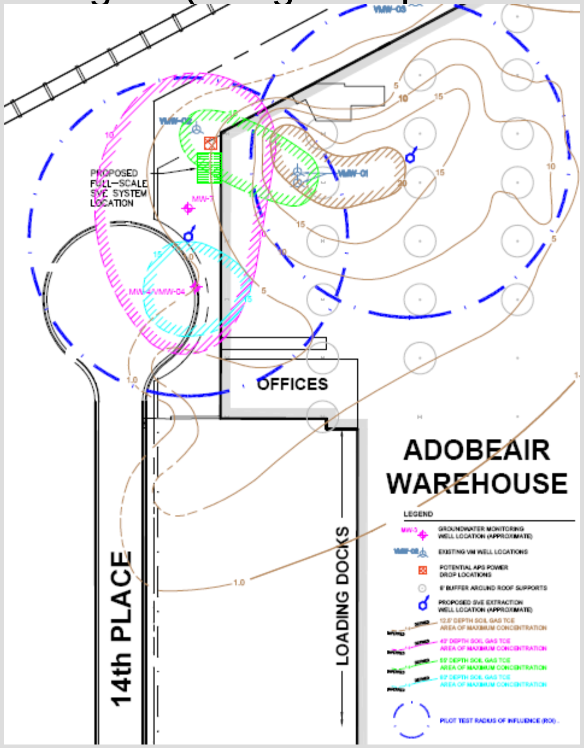
- During the months of spring, groundwater generally flows Northwest
- During the months of fall, groundwater generally flows West

Fate & Transport Modeling

Model Constraints:

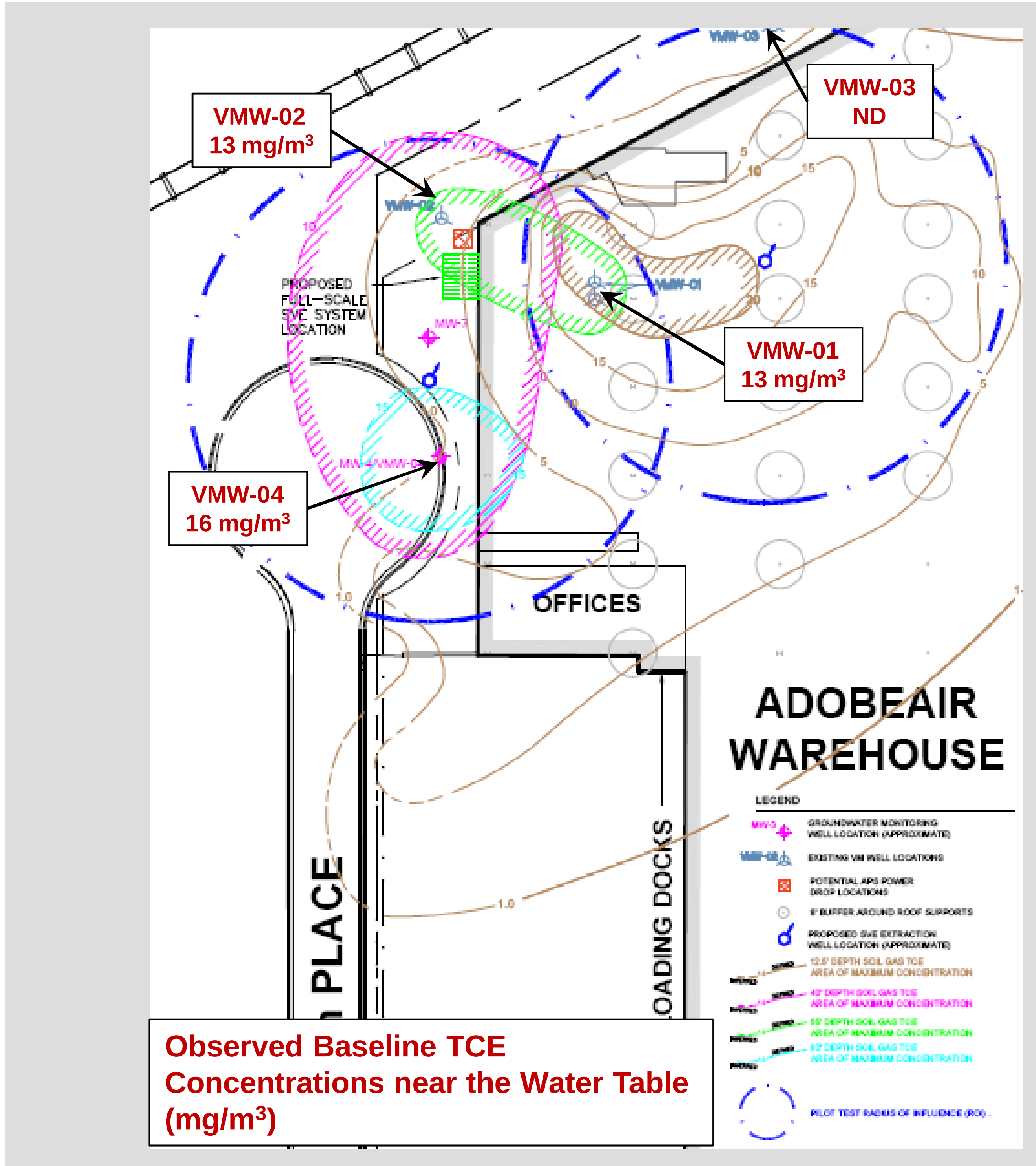
- **Constraints on Remaining Model Input Parameters**

- **Source Geometry**
  - Recent Soil Gas Investigation (ARCADIS, 2008) Baseline Sampling Event indicates concentrations of TCE in soil gas range near the water table range from ND to 16 mg/m^3 (milligrams per cubic meter)



Fate & Transport Modeling

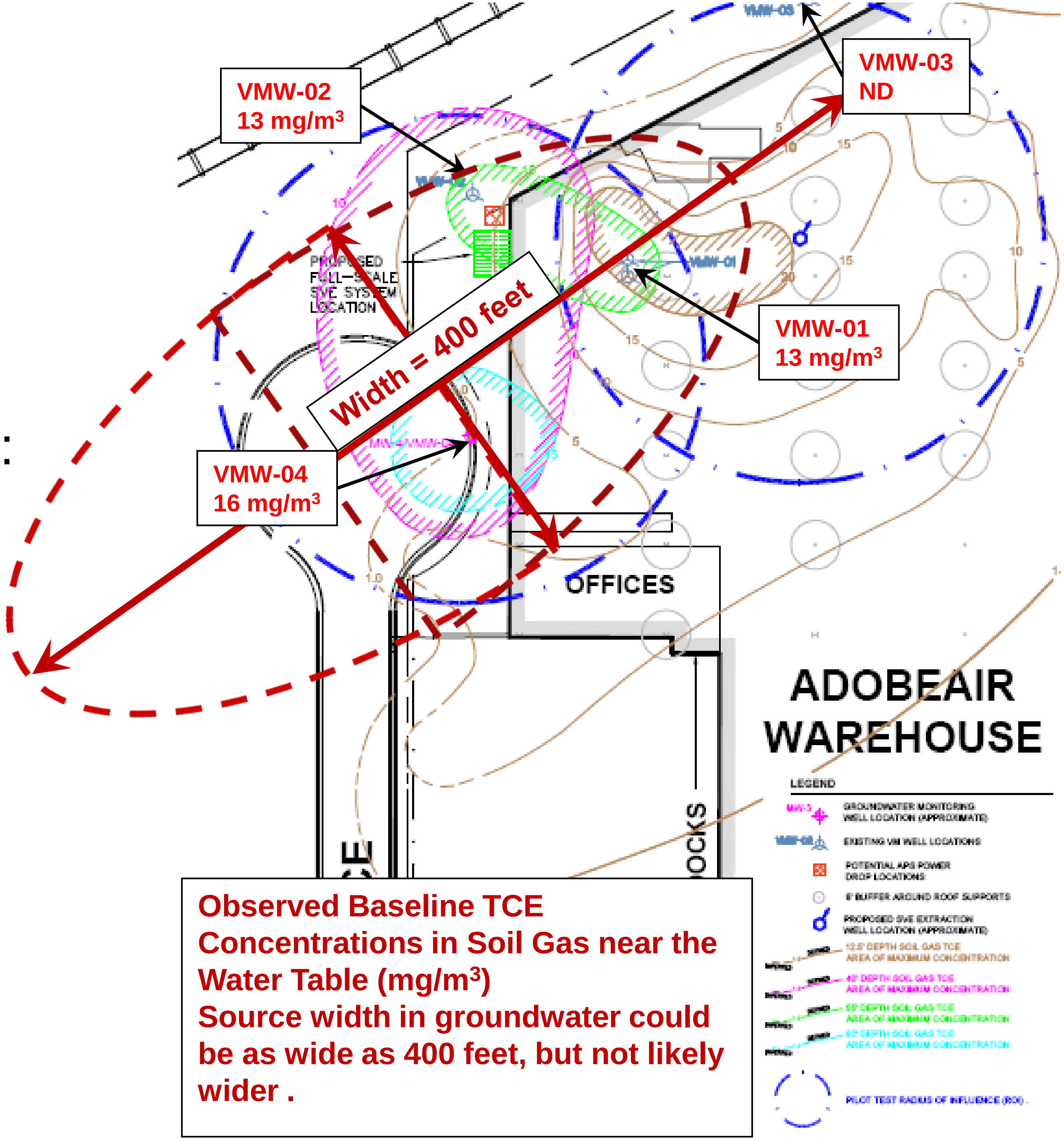
Model Constraints:



Observed Baseline TCE Concentrations near the Water Table (mg/m^3)

Fate & Transport Modeling

Model Constraints:



Fate & Transport Modeling

Model Constraints:

- **Constraints on Remaining Model Input Parameters**

- **Source Concentration**
  - TCE in soil gas range near the water table range from ND to 16 mg/m^3
  - At equilibrium, according to Henry's Law the concentration of TCE in groundwater is proportional to the concentration of TCE in soil gas and follows the relationship:

$$C_{vapor} = H_o \cdot C_{aq}$$

  - For TCE at 15°C, $H_o = 6.39\times10^{-3}$ atm·m³/mol

    (atmospheres·cubic meter per mole)

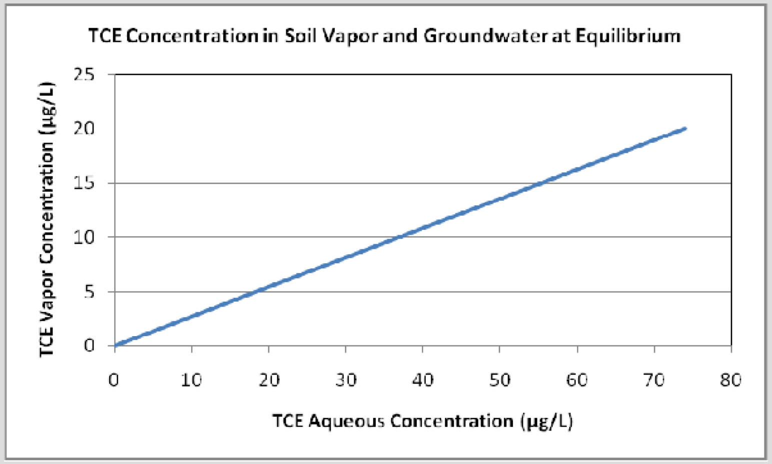
Fate & Transport Modeling

Model Constraints:

- **Constraints on Remaining Model Input Parameters**

- **Source Concentration**
  - The maximum concentration of TCE in groundwater in the vadose zone, currently, is probably no more than 60 µg/L; however TCE concentrations in groundwater have not been observed greater than 59 µg/L since 1992 and are typically less than 20 µg/L in recent years.

Vapor Concentration µg/L	Aqueous Concentration µg/L
0	0.0
2	7.4
4	15
6	22
8	30
10	37
12	44
14	52
16	59
18	67
20	74



Fate & Transport Modeling

Model Constraints:

- **Constraints on Remaining Model Input Parameters**

- **In Summary**
  - The Groundwater Flow Direction ranges from 285º to 315º. The average groundwater flow direction is approximately 295º.
  - The Source Geometry is probably no larger than 400 feet wide.
  - The groundwater TCE concentration in the Source Area is probably less than 60 µg/L (currently).

Fate & Transport Modeling

Conceptual Model:

- **Conceptual Fate and Transport Model**
  - A localized source of TCE exists in the vicinity of MW-04;
  - The TCE source is constrained to the vadose zone (unsaturated zone above the water table);
  - The concentration of TCE in groundwater in the source area is a result of vapor diffusion from the source constrained in the vadose zone;
  - The concentrations of TCE in groundwater in the source area are variable because TCE soil vapor concentrations are variable;
  - Groundwater flow direction is variable (given seasonality), but flows generally W to WNW (sometimes in the direction of TT-1 and TT-2);
  - Groundwater elevations are sensitive to Salt River discharge and major precipitation events

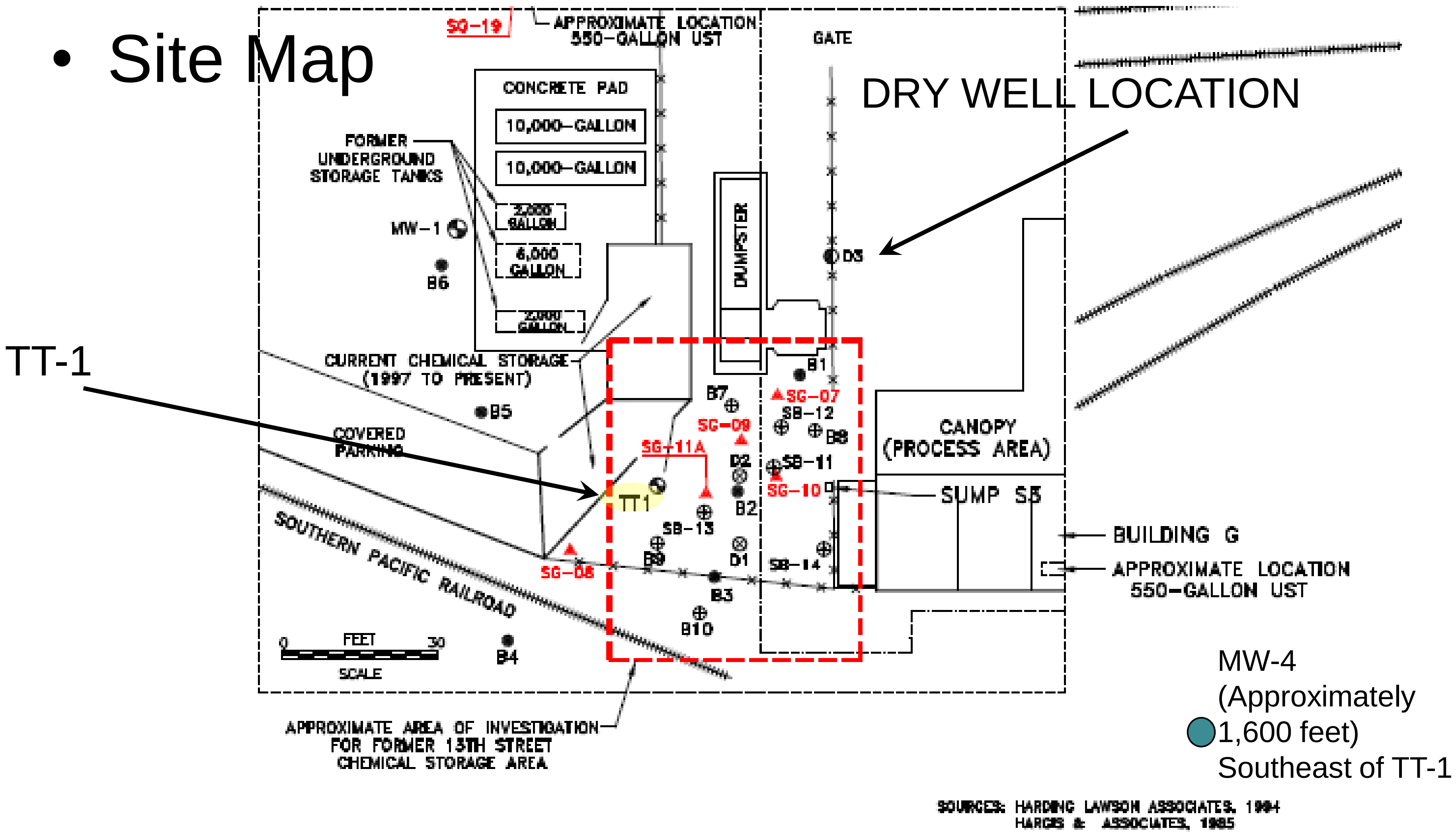
Fate & Transport Modeling

Conceptual Model:

- **Conceptual Fate and Transport Model**
  - Monitoring wells at Walker Power Systems (TT-1 and TT-2) serve as appropriate down-gradient calibration targets
    - TT-1 is constructed similarly to MW-04
    - TT-2 well screen is slightly deeper than MW-04
  - The variable TCE concentrations observed at TT-1 and TT-2 are a result of:
    1. Local TCE impacts in the vadose zone;
    2. Influences of precipitation and proximity to a nearby stormwater recharge well; and
    3. Variations in groundwater flow direction

Walker Power Systems

- Site Map



Fate & Transport Modeling

Conceptual Model:

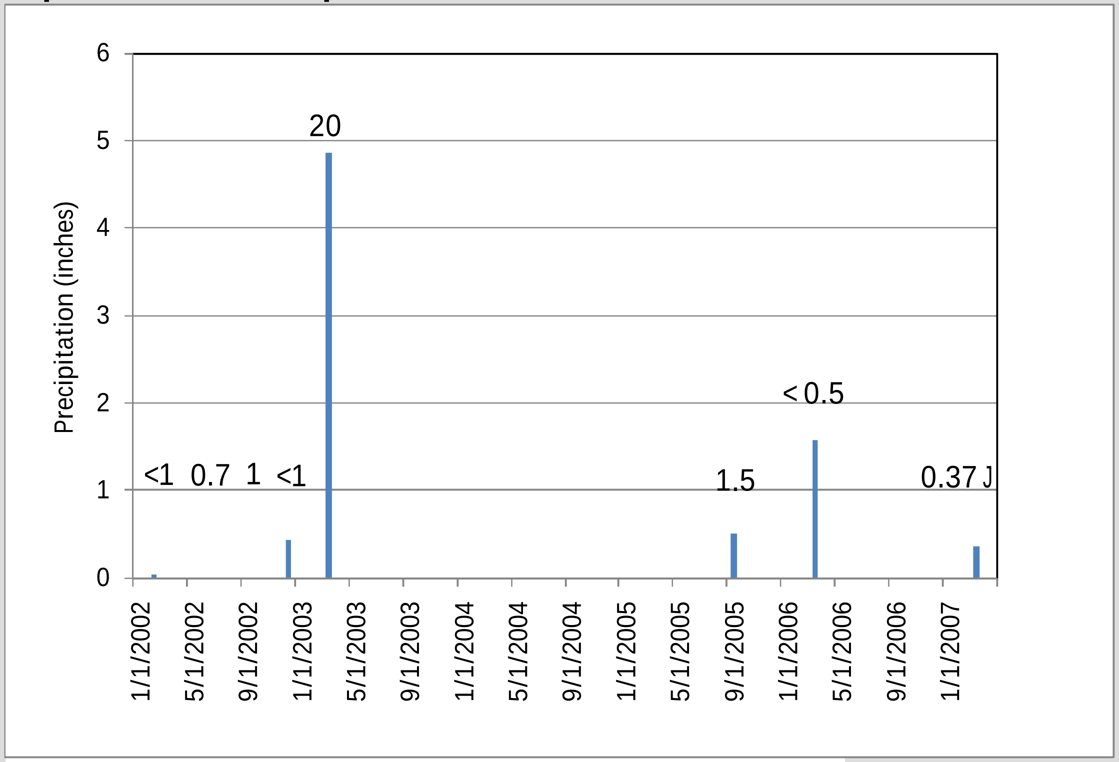
- **Calibration Targets:**
  - Use available TCE concentration data at down-gradient locations to calibrate the F&T model
  - Closest down-gradient TCE concentration data in groundwater available for wells TT-1 and TT-2
  - TT-1 is constructed similarly to MW-04
  - TT-2 well screen is slightly deeper than MW-04

Well	Date	Total Depth (feet bgs)	Screen Interval (feet bgs)
MW-04	12/12/1991	88.5	84-88.5
TT-1	2/27/1988	90	48-88
TT-2	2/26/1988	110	56-106

Fate & Transport Modeling

Conceptual Model:

- Precipitation within 20 days of sample collection (2002 – 2009)
- High concentration result in 3/2003 attributed to heavy precipitation and subsequent infiltration prior to sample collection

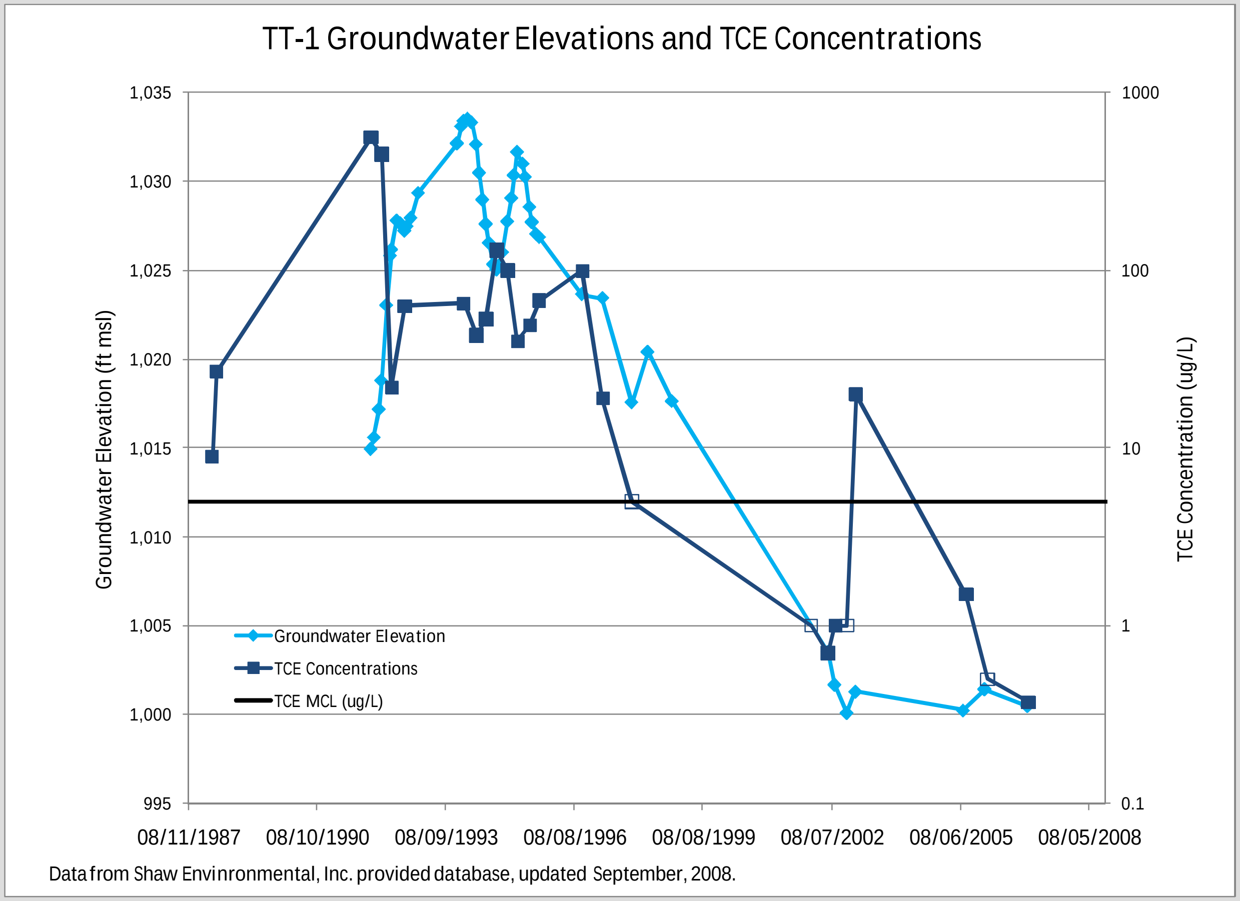


Posted values = concentrations of TCE in ug/L

Fate & Transport Modeling

Model Calibration Targets:

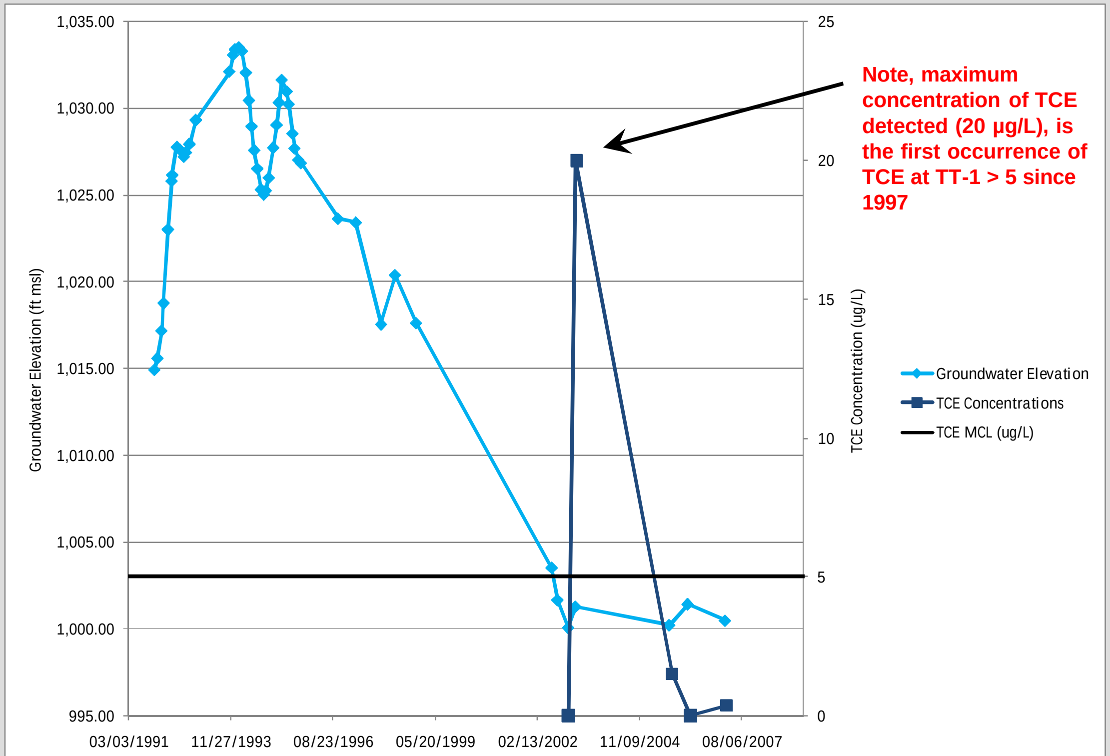
- **TT-1 Observed TCE Concentrations (1987 – 2009):**



Fate & Transport Modeling

Model Calibration Targets:

- **TT-1 Observed TCE Concentrations (2002 – 2009):**
  - Average TCE concentration = 3.94 µg/L
  - Minimum concentration = ND
  - Maximum concentration = 20 µg/L



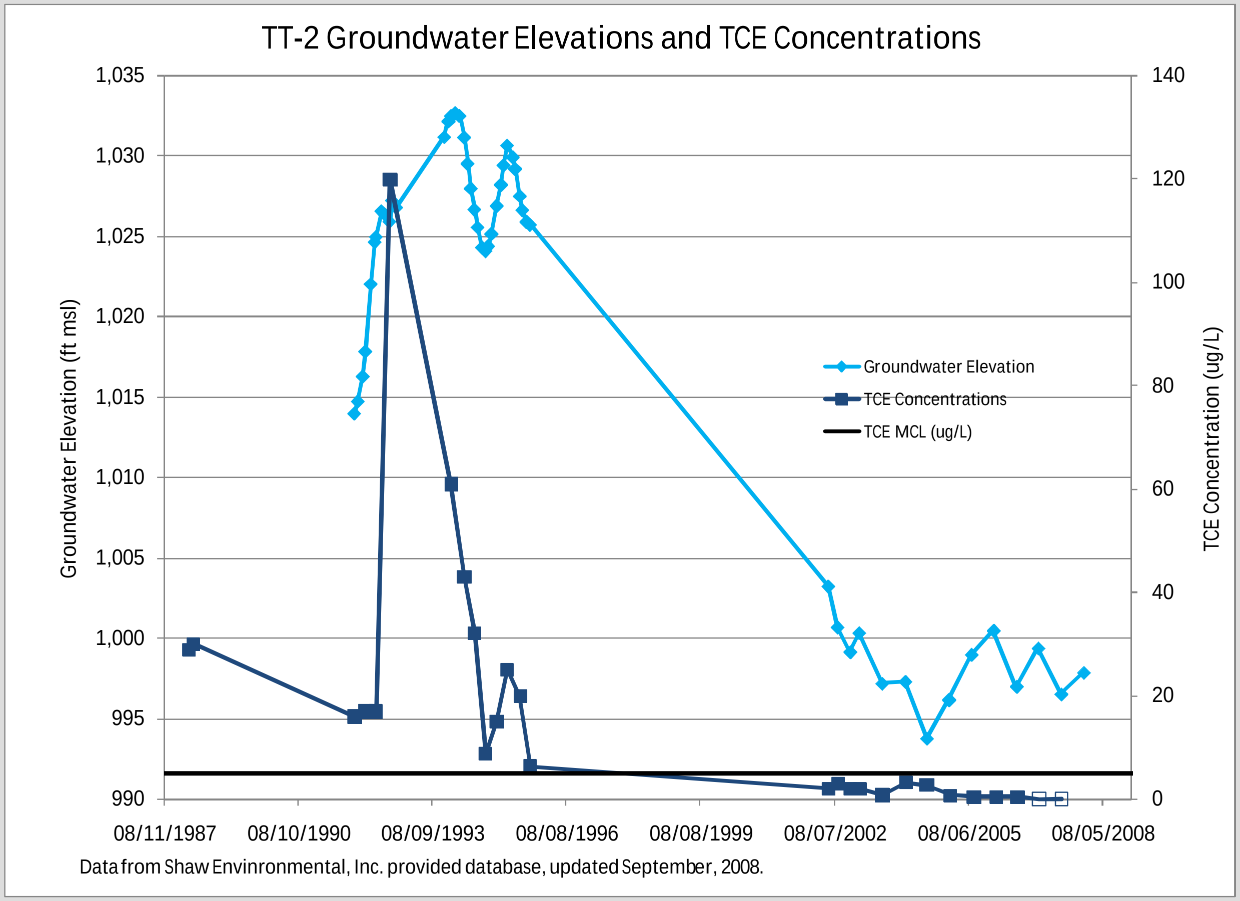
Data from Shaw Envinronmental, Inc. provided database, updated September, 2008.

 17 August 2009

Fate & Transport Modeling

Model Calibration Targets:

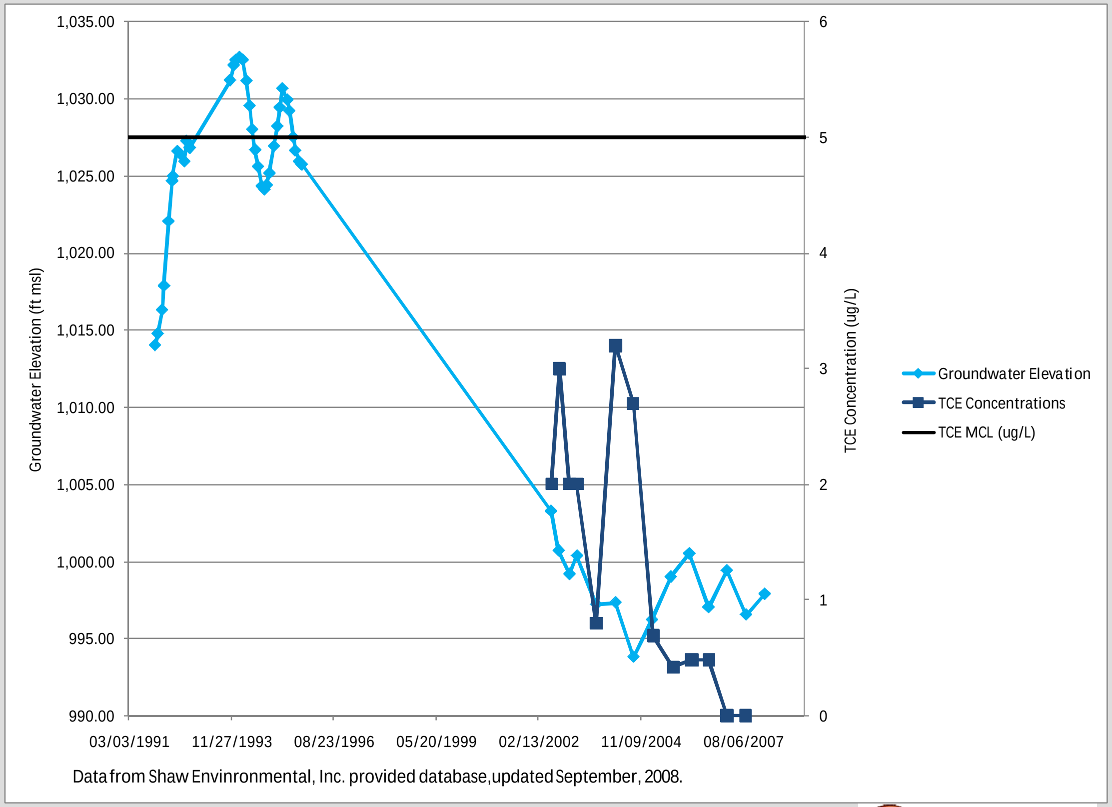
- **TT-2 Observed TCE Concentrations (1987 – 2009):**



Fate & Transport Modeling

Model Calibration Targets:

- **TT-2 Observed TCE Concentrations (2002 – 2009):**
  - Average TCE concentration = 1.38 µg/L
  - Minimum concentration = ND
  - Maximum concentration = 3.2 µg/L



Data from Shaw Envinronmental, Inc. provided database, updated September, 2008.

Fate & Transport Modeling

Model Calibration Targets:

- **Calibration Targets:**
  - TT-1 Calibration Target = Average concentration of TCE observed since 2002, excluding the March 2003 result
  - TT-2 Calibration Target = Average concentration of TCE observed since 2002

Well	Target Concentration (µg/L)
TT-1	0.87
TT-2	1.43

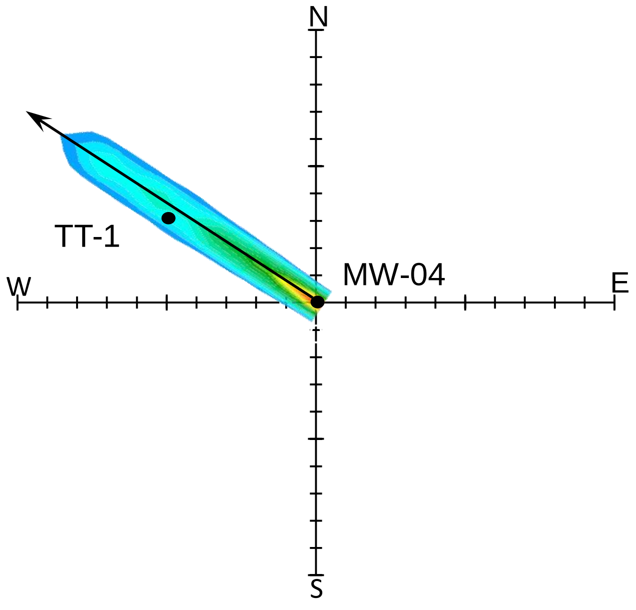
Fate & Transport Modeling

Model Calibration:

• Results of Model Calibration

- The Fate and Transport Model will calibrate using Several Combinations of Groundwater Flow Direction, Source Width and Source Concentration
- For example,

Groundwater Flow Direction



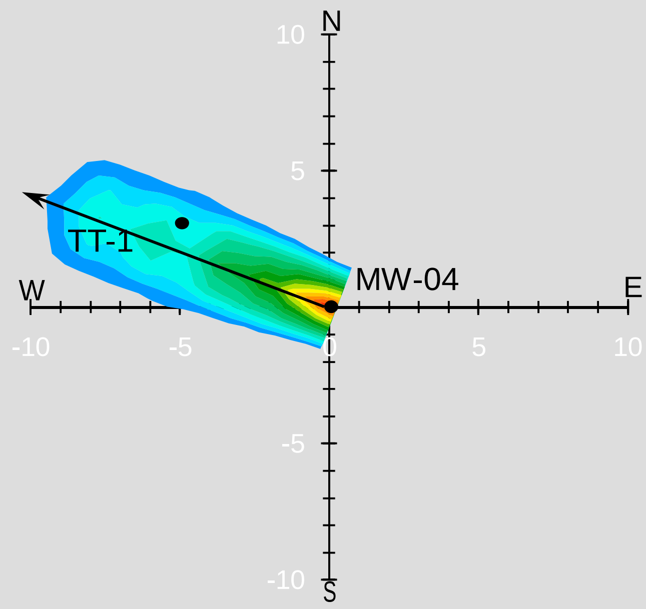
Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**

- Adjusting the Source Width and Groundwater Flow Direction, while maintaining the same Source Concentration will yield a similar result at TT-1

Groundwater Flow Direction



 17 August 2009

Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**

- The following Tables present combinations of Source Concentration and Groundwater Flow Direction for various Source Widths

Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**
- **Source Width = 100 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual[1] • (µg/L)	TT-2 Residual[1] • (µg/L)	• w_i·Residual[2] • (µg/L)
275	2,500	0.01	1.22	1.23
280	150	-0.03	1.00	0.97
285	19	0.01	0.79	0.80
290	5.7	0.00	0.63	0.63
295	3.6	0.00	0.67	0.67
300	5.0	0.00	0.84	0.84
305	15	0.00	1.07	1.07
310	99	0.00	1.26	1.26
315	1,500	-0.01	1.36	1.35
320	54,000	-0.01	1.41	1.40
325	>1,100,000	0.68	1.42	2.10
330	>1,100,000	0.87	1.43	2.30
335	>1,100,000	0.87	1.43	2.30
340	>1,100,000	0.87	1.43	2.30
345	>1,100,000	0.87	1.43	2.30
350	>1,100,000	0.87	1.43	2.30

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

Fate & Transport Modeling

Model Calibration:

• Results of Model Calibration

- **Source Width = 200 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual • (µg/L)	TT-2 Residual • (µg/L)	• w_i·Residual^2 • (µg/L)
275	775	0.00	1.22	1.22
280	56	0.00	1.02	1.02
285	8.7	0.00	0.79	0.79
290	2.8	0.01	0.65	0.66
295	1.9	0.00	0.65	0.65
300	2.5	0.01	0.83	0.84
305	6.9	0.00	1.06	1.06
310	39	0.00	1.25	1.25
315	475	0.00	1.36	1.36
320	13,200	0.00	1.41	1.41
325	900,000	0.01	1.42	1.43
330	>1,100,000	0.86	1.43	2.29
335	>1,100,000	0.87	1.43	2.30
340	>1,100,000	0.87	1.43	2.30
345	>1,100,000	0.87	1.43	2.30
350	>1,100,000	0.87	1.43	2.30

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

Fate & Transport Modeling

Model Calibration:

Results of Model Calibration

- **Source Width = 300 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual • (µg/L)	TT-2 Residual • (µg/L)	• w_i·Residual^2 • (µg/L)
275	280	0.01	1.23	1.24
280	26	0.01	1.03	1.04
285	5.1	0.00	0.79	0.79
290	1.9	0.01	0.65	0.66
295	1.4	-0.03	0.62	0.59
300	1.7	0.02	0.82	0.84
305	4.1	0.01	1.04	1.05
310	19	0.00	1.24	1.24
315	180	0.00	1.36	1.36
320	3,800	0.00	1.41	1.41
325	190,000	-0.01	1.42	1.41
330	>1,100,000	0.83	1.43	2.26
335	>1,100,000	0.83	1.43	2.26
340	>1,100,000	0.83	1.43	2.26
345	>1,100,000	0.83	1.43	2.26
350	>1,100,000	0.83	1.43	2.26

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

Fate & Transport Modeling

Model Calibration:

- # Results of Model Calibration
- **Source Width = 400 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual • (µg/L)	TT-2 Residual • (µg/L)	• $w_i \cdot Residual^2$ • (µg/L)
275	113	0.00	1.22	1.22
280	14	-0.02	1.01	0.99
285	3.3	0.00	0.79	0.79
290	1.5	-0.01	0.62	0.61
295	1.1	0.01	0.64	0.65
300	1.4	-0.02	0.76	0.74
305	2.7	0.02	1.02	1.04
310	10	0.03	1.23	1.26
315	76	0.00	1.35	1.35
320	1,200	-0.01	1.40	1.39
325	43,000	0.01	1.42	1.43
330	>1,100,000	0.63	1.43	2.06
335	>1,100,000	0.87	1.43	2.30
340	>1,100,000	0.87	1.43	2.30
345	>1,100,000	0.87	1.43	2.30
350	>1,100,000	0.87	1.43	2.30

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

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Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**
- **Source Width = 500 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual • (µg/L)	TT-2 Residual • (µg/L)	• w_i·Residual^2 • (µg/L)
275	49	0.01	1.22	1.23
280	7.7	0.00	1.01	1.01
285	2.3	0.01	0.79	0.80
290	1.2	0.02	0.65	0.67
295	1.0	-0.01	0.61	0.60
300	1.1	0.04	0.78	0.82
305	2.0	0.01	0.98	0.99
310	6.0	0.01	1.20	1.21
315	35	-0.01	1.34	1.33
320	410	0.01	1.40	1.41
325	11,000	0.00	1.42	1.42
330	730,000	0.00	1.42	1.42
335	>1,100,000	0.86	1.43	2.29
340	>1,100,000	0.87	1.43	2.30
345	>1,100,000	0.87	1.43	2.30
350	>1,100,000	0.87	1.43	2.30

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**
- **Source Width = 1,000 feet**

Gradient Direction •	Source Concentration Co (µg/L)	TT-1 Residual • (µg/L)	TT-2 Residual • (µg/L)	• w_i·Residual^2 • (µg/L)
275	2.9	0.00	1.12	1.12
280	1.4	-0.02	0.86	0.84
285	1.0	-0.02	0.65	0.63
290	0.9	-0.02	0.56	0.54
295	0.9	-0.03	0.53	0.50
300	0.9	-0.02	0.58	0.56
305	1.0	-0.05	0.70	0.65
310	1.3	-0.03	0.98	0.95
315	2.5	-0.01	1.23	1.22
320	8.3	0.00	1.36	1.36
325	53	0.01	1.41	1.42
330	720	0.00	1.42	1.42
335	22,000	-0.01	1.43	1.42
340	>1,100,000	0.31	1.43	1.74
345	>1,100,000	0.86	1.43	2.29
350	>1,100,000	0.87	1.43	2.30

Residual = (Observed Concentration) – (Modeled Concentration)

TT-1 Observed Concentration = 0.86 µg/L

TT-2 Observed Concentration = 1.43 µg/L

Sum of Weighted Residual = 1.0·(TT-1 Residual) + 1.0·(TT-2 Residual)

Note, even though several combinations of Source Concentration and Groundwater Flow Direction adequately calibrate the model to the average concentrations of TCE observed at TT-1 and TT-2, only those combinations highlighted in WHITE are PROBABLE.

The combinations highlighted in GRAY are NOT PROBABLE because the Source Concentration exceeds the expected maximum of 60 µg/L.

The combinations highlighted in GRAY and HATCHED are NOT PROBABLE because the Groundwater Flow Direction is outside of the expected bounds.

In addition, this Source Width is NOT PROBABLE because concentrations of TCE in soil gas do not indicate a Source Area wider than 400 feet.

Fate & Transport Modeling

Model Calibration:

- **Results of Model Calibration**
- Combinations of Source Width values ranging from 100 to 1,000 feet and Source Concentrations ranging from 0.90 to 39 µg/L provide probable calibrations.
- However, source width of 1,000 feet is unlikely given recent soil gas investigation data.
- Concentrations of TCE of > 20 µg/L are unlikely since concentrations > 20 µg/L have not been observed in groundwater since 1992.
- **Two Likely Model Calibrations Exist** (Combination of Groundwater Flow Direction, Source Width and Source Concentration that best represents the current Site Conditions)

Fate & Transport Modeling

Model Calibration:

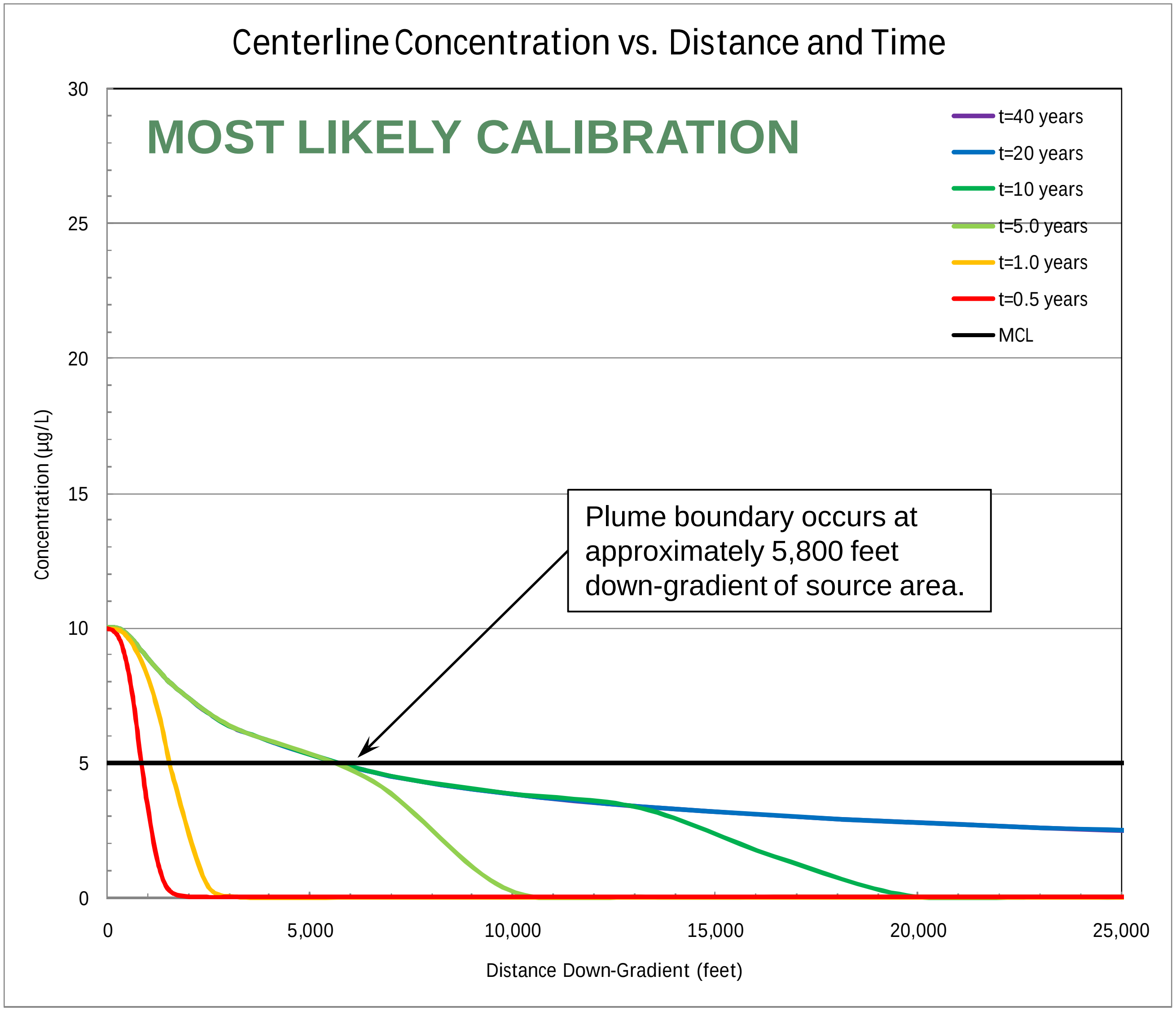
- **Most Likely Calibration Scenario**
  - Source Concentration = 10 µg/L
  - Source Width = 400 feet
  - Groundwater Flow Direction = 310 degrees
  - Hydraulic Conductivity = 450 feet/day
  - Groundwater Hydraulic Gradient = 0.002 ft/ft
  - Effective Porosity = 0.20
  - Dispersivity = 80 feet
- Represents a good calibration of the Fate and Transport model to the average of the observed concentrations at TT-1 and TT-2.
- Modeled Source Width agrees well with the width of the soil gas plume near the water table.
- Source concentration agrees well with the average of the TCE concentrations observed at MW-04 over the last five years (14 µg/L)

Fate & Transport Modeling

Model Calibration:

- **Alternate Calibration Scenario**
  - Source Concentration = 6.0 µg/L
  - Source Width = 500 feet
  - Groundwater Flow Direction = 310 degrees
  - Hydraulic Conductivity = 450 feet/day
  - Groundwater Hydraulic Gradient = 0.002 ft/ft
  - Effective Porosity = 0.20
  - Dispersivity = 80 feet
- Represents a good calibration of the Fate and Transport model to the average of the observed concentrations at TT-1 and TT-2.
- Modeled Source Width slightly larger than the observed width of the soil gas plume near the water table, but is possible.
- Source concentration is similar to average TCE concentration observed at MW-04 over the last year (6.8 µg/L)

Maximum Plume Extent Down-Gradient & Time Required to Reach Steady State Conditions



Note, This plot indicates that steady state conditions are met sometime between 1 and 5 years. In other words, the plume extent is stable after 5 years.

Imagine the result

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Most Likely Case: Calibrated Plume Extents, time = 20 yrs

Inputs:

Source Concentration = 10 µg/L

Source Width = 400 feet

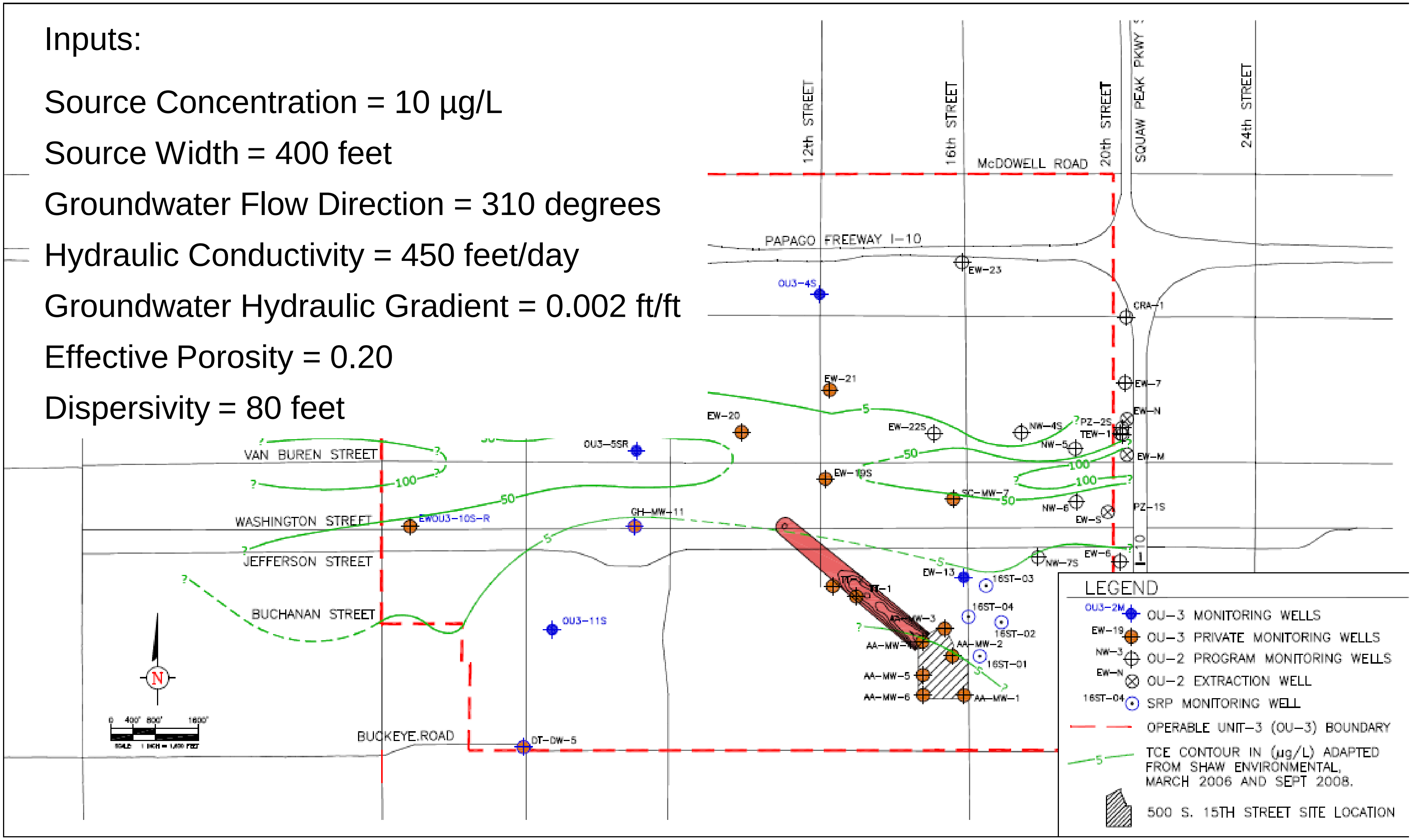
Groundwater Flow Direction = 310 degrees

Hydraulic Conductivity = 450 feet/day

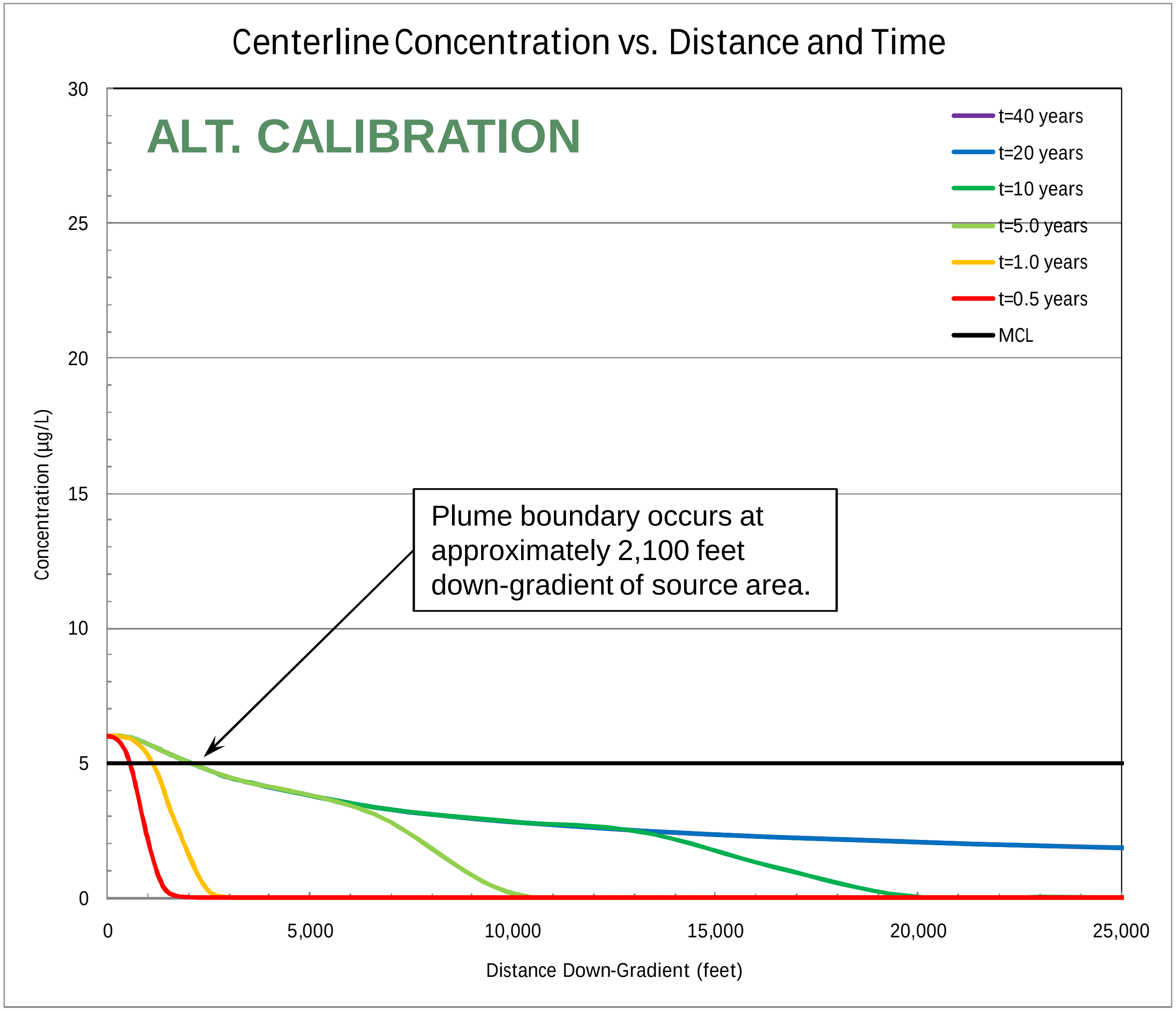
Groundwater Hydraulic Gradient = 0.002 ft/ft

Effective Porosity = 0.20

Dispersivity = 80 feet



Maximum Plume Extent Down-Gradient & Time Required to Reach Steady State Conditions



Note, This plot indicates that steady state conditions are met sometime between 1 and 5 years. In other words, the plume extent is stable after 5 years.

Imagine the result

ARCADIS

Alt#1 Likely Case: Calibrated Plume Extents, time = 20 yrs

Inputs:

Source Concentration = 6.0 µg/L

Source Width = 500 feet

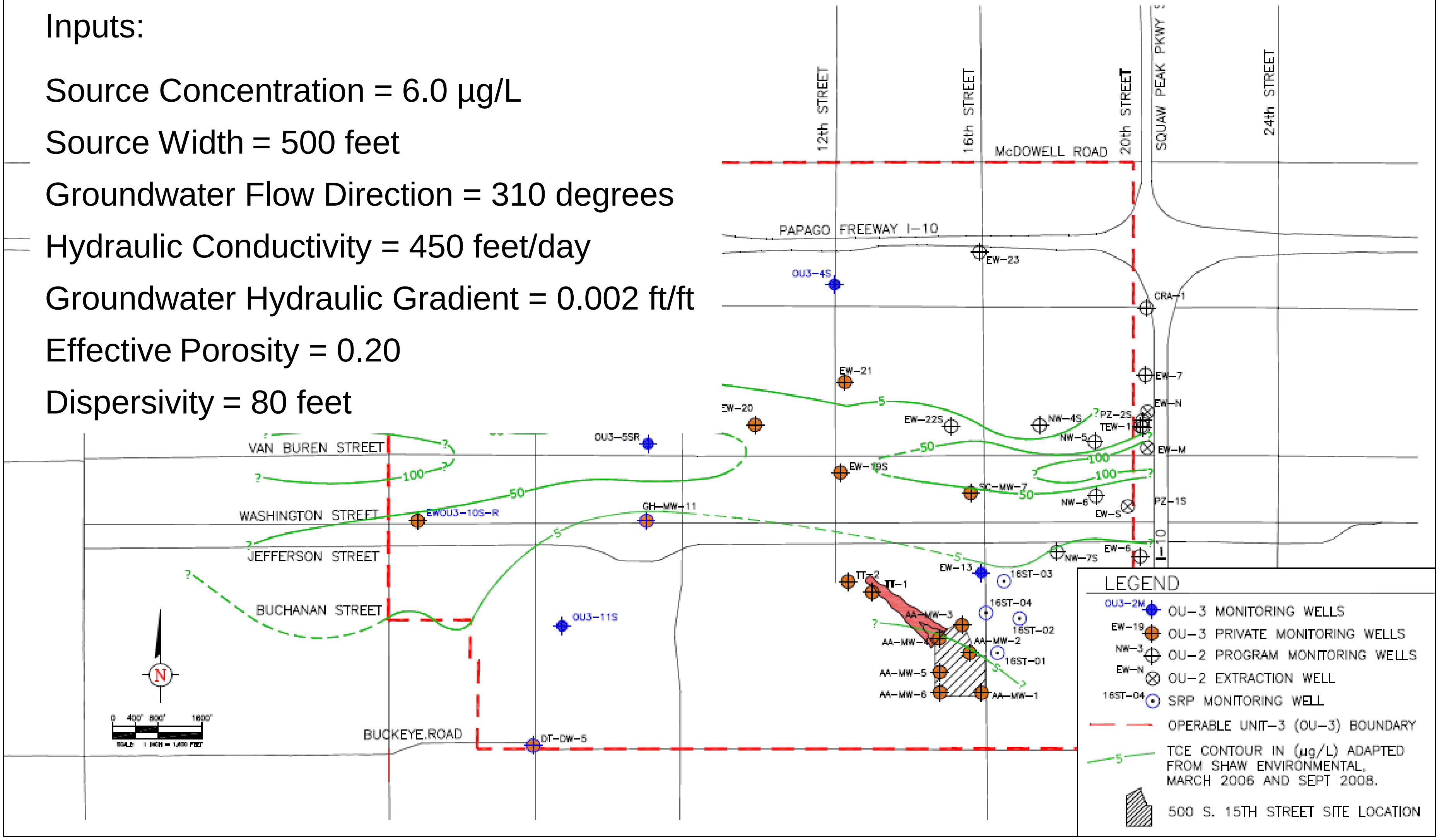
Groundwater Flow Direction = 310 degrees

Hydraulic Conductivity = 450 feet/day

Groundwater Hydraulic Gradient = 0.002 ft/ft

Effective Porosity = 0.20

Dispersivity = 80 feet



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Summary

- Variable groundwater elevations and variable groundwater flow directions are observed at the Site
- Fate and transport model calibrated by adjusting source width, concentration and groundwater flow direction
- Source width, concentration and groundwater flow direction constrained by available site data
- Analytic model is “calibrated” to average observed TCE concentrations at TT-1 and TT-2
- Model is conservative due to constraints and observed conditions

Conclusions

- Variable groundwater flow directions are likely attributable to significant precipitation events and/or significant flux in the Salt River
- Numerous combinations of source width, source concentration and groundwater flow direction will calibrate the model; however, site data indicate two combinations are most probable
- Steady state conservative conditions indicate the 500 South 15th Street Facility is **<u>not</u>** contributing to the Motorola 52nd Street plume
- The use of concentration data at Walker Power Systems wells to calibrate the model does not imply that impacts in groundwater at 500 South 15th Street have contributed to Walker Power Systems. The Walker Power Systems site groundwater concentration data were used because Walker Power Systems is the only data point located generally downgradient from the 500 South 15th Street Facility

Conclusions

- Fate and Transport model is <u>Conservative</u>.

  - The model does not take into account recharge (dilution), degradation, retardation, or other sources in the area (*e.g.* potential source at Walker Power Systems Site and potential sources between 500 South 15th Street Facility and Walker Power Systems)
  - The model is calibrated using the **maximum** reported hydraulic conductivity of 450 feet/day
  - The model does not account for variable groundwater flow directions, *i.e.* the westerly flow direction observed during the fall is not represented
  - The model is calibrated using a low dispersivity (degree of mixing parameter)
  - The model results do not account for sources of TCE local to TT-1 and TT-2.
  - Empirical TCE concentration results at TT-1 and TT-2 are non-detect
  - Non-Detect results at TT-1 and TT-2 are considered equal to the reporting limit.

Soil Vapor Extraction Pilot Study Status

- Submitted to USEPA on December 31, 2008
- E-mail from USEPA in late January 2009 indicating comments anticipated to be available in one week (January 30, 2009)
- <u>Need response from USEPA to move forward.</u>

Upcoming Events/Schedule

- Indoor Air Re-sample event – August 21, 2009
- Groundwater Elevations and Groundwater Samples to be collected September 9-10
- Soil Vapor Samples to be collected September 10-11

Legal Status of AdobeAir, Inc.

- AdobeAir, Inc. was liquidated in late 2008 and probably will be dissolved in 2009
- Assets (inventory, intellectual property) sold to Champion Cooler Corporation, a subsidiary of Essex Air Products, Inc., excluding the equity of Impco, whose principal facilities are located in Mexico
- Liabilities (debt, buildings, etc.) liquidated, leases cancelled or not renewed
- AdobeAir, Inc. is identified in Administrative Order on Consent

USEPA Release of Southern Half of Property from Additional Investigation

- Potential environmental issues identified in Research Report (ARCADIS, 2005)
- These potential environmental issues within the southern portion of the facility have been addressed by ArvinMeritor (soil vapor sampling, building surveys, historical groundwater sampling, etc.)
- USEPA has approved the reports summarizing investigation activities and no issues remain
- Practical need for release of property in southern half of 500 South 15th Street Facility
    - ArvinMeritor's contingent environmental liabilities
    - Current Owner's need to address leasing issues

Questions/Comments

Adjourn

Imagine the result

